



INTERNATIONAL AUTOMATION SOLUTIONS

WHAT IAS BUILDS, AND HOW PROJECTS RUN.

Three documents from one machine builder in Evansville, Indiana: the company capability sheet, the IAS Osprey product sheet with its measured results, and the phased process both kinds of work run on.

Company capability sheet

Pages 2 to 5

Disciplines, platforms, the build floor and selected projects

IAS Osprey product sheet

Pages 6 to 9

The flagship inspection system: specifications, measured results and hardware

IAS Osprey process sheet

Pages 10 to 11

The phased path from fit review to production and support

International Automation Solutions, Inc.

2138 N 6th Ave, Evansville, Indiana 47710

812-213-0557 · info@ias-in.com · IAS-IN.COM



INTERNATIONAL AUTOMATION SOLUTIONS

CAPABILITIES

COMPANY CAPABILITY SHEET

MACHINE BUILDER AND AUTOMATION INTEGRATOR.

From the AI model to the welded frame, IAS designs and delivers the entire package: vision inspection, robot cells, high speed motion, UL 508A control panels and material handling, backed by an in house fab and machine shop.



■ **Built at IAS.** Engineered, fabricated, wired and programmed by one team, then run off on our floor before it ships.

50+ jobs

Machine builds, retrofits and support engagements delivered

130k sq ft

Manufacturing facility on 4.5 acres in Evansville, Indiana

6 disciplines

Vision, robotics, motion, panels, handling and fabrication under one roof

UL 508A

Panel shop, UL file E549156, qualified MTR on staff

FOOD PACKAGING ♦ CO-PACKERS ♦ DISTILLING & COOPERAGE ♦ MUNICIPAL WATER ♦ PROCESS OEMS

WHAT WE DO

Core disciplines

Six things, done by the same people, on the same job number. The value is not in any one of them. It is in not having to stitch six vendors together.

AI vision inspection



Deep learning inspection engineered onto your existing line: registration, triggering, reject handling and operator HMI. The full IAS Osprey Inspection System lives on its product sheet.

Robotic integration



Complete cells: robot, end of arm tooling, guarding, safety circuits and commissioning. Tending, pick and place, palletizing, vision guided motion.

Motion engineering



Servo systems, electronic camming and gearing, registration and coordinated multi axis control for complicated, high speed lines.

Panels, UL 508A



Industrial control panels designed, wired and labeled in our own UL 508A shop, from a single enclosure retrofit to full line control.

Handling equipment



Conveyors, transfers, diverts, accumulation and reject handling, designed around your product and wired into line controls.

Fabrication



A full metal shop in house: welding, machining, waterjet cutting and sheet metal brake forming. Guarding and fencing, frames, fixtures and complete industrial systems, not just parts for our own machines.

PLATFORMS AND STANDARDS

Engineering capability

The platforms and standards we work in, listed here so you can check them against your plant standard up front.

- **Controls and PLC.** Allen-Bradley ControlLogix, CompactLogix and GuardLogix in Studio 5000, AutomationDirect BRX, and Siemens. We are platform agnostic and build to whatever your plant standard specifies.
- **Machine safety.** Risk assessment to ISO 13849, Category 4 and PLe circuits, safety PLCs, area scanners, guard locking, safe torque off.
- **Motion and drives.** Kinetix servo axes with camming and registration, PowerFlex lineups from fractional to 250 HP, encoder tracked product flow.
- **Vision and AI.** Deep learning training and runtime toolchain, GPU inference, registration and triggering proven at line speed, and camera, optics and lighting selected per product and application.
- **HMI, SCADA and data.** PanelView and FactoryTalk View, AVEVA InTouch on industrial PCs, recipes, alarming and audit logging.
- **Networks and I/O.** EtherNet/IP, managed switching, IO-Link distributed I/O out on the machine instead of copper home runs.
- **Electrical and panels.** AutoCAD Electrical schematic sets, UL 508A calculations and labeling, NEMA 4, 4X and 12 builds, VFD cabinets to 400 A feeds, as built documentation.
- **Mechanical design.** Autodesk Inventor and Vault, machine frames, guarding and conveyance, combustion control and hazardous area experience.

WHERE WE WORK

FOOD MANUFACTURING & CO-PACKING

DISTILLING & COOPERAGE

MUNICIPAL WATER & WASTEWATER

METAL & COMPONENT MANUFACTURING

PLASTICS & EXTRUSION

PROCESS EQUIPMENT OEMS

ENTRANCE & SECURITY SYSTEMS



INTERNATIONAL AUTOMATION SOLUTIONS

CAPABILITIES

COMPANY CAPABILITY SHEET

THE BUILD FLOOR

Fabrication and assembly

IAS builds in a fab and machine shop alongside the panel shop: welding, machining, waterjet cutting and sheet metal brake forming. Because of our capability, most of our components are manufactured in house, and every machine is assembled and run off here before it ships, which gives us more control of schedule and quality.



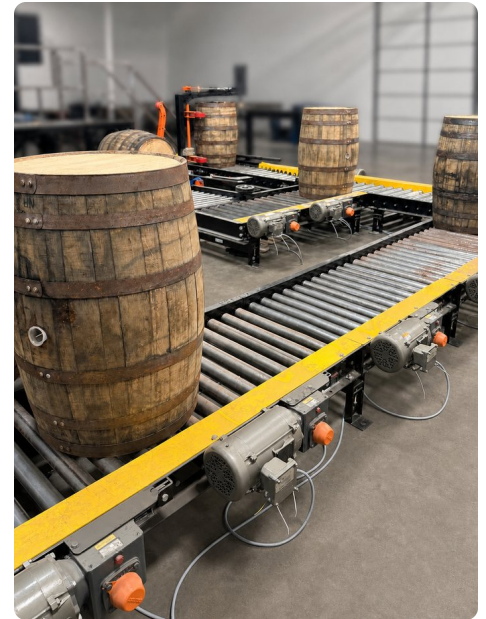
WELD & FORM

Frames and fixtures cut, formed and welded in house.



PANEL SHOP

Stainless operator stations wired, labeled and integrated in our UL 508A shop.



CONVEYANCE

Handling built around the product, wired into the line.



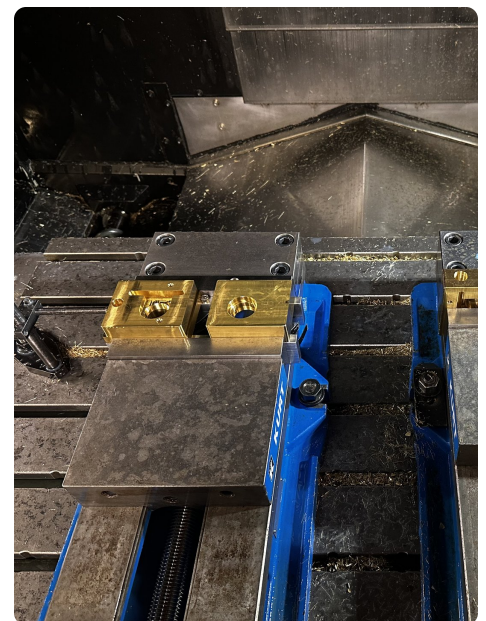
CONTROLS CRAFTSMANSHIP

Every wire numbered, every panel labeled, as built documentation delivered on every job.



MACHINE FRAMES

Aluminum extrusion or welded steel, sized to the job, from a mobile vision frame to a full line.



MACHINING

Components and fixtures cut in the machine shop beside the fab floor.

Photographs show IAS equipment, panels and machine shop work on our floor in Evansville, Indiana.



WHAT WE TAKE ON

Service calls, retrofits, machines and complete lines

Lines, cells and machines

Custom machines, robot cells and complete lines: design, controls, safety, FAT, installation, SAT and training, delivered against written acceptance criteria.

Panels and retrofits

UL 508A panel builds, brownfield conversions, drive and PLC platform migrations, and process control retrofits on running equipment.

Standing support

Remote and onsite controls support, from single session remote fixes to multi week commissioning.

IAS Osprey THE FLAGSHIP INSPECTION SYSTEM

We automate the visual inspections people can do but conventional machine vision cannot: the defects that hide in glare, texture and normal product variation. Models are trained on your product and wired into the machine, so every verdict is acted on at line speed.

SEAL & CLOSURE

PUNCTURE & TEAR

DELAMINATION

SURFACE DAMAGE

CONTAMINATION

LABEL & PRINT

MISALIGNMENT

ASSEMBLY ERRORS

WHY IT MATTERS

Single source accountability

IAS delivers design, fabrication, controls, vision and support under one purchase order, with accountability that stays in one place for the life of the machine. Catch rates are quoted per application after validation, not from a brochure.

RECENT WORK

Selected projects

- **Coiled iron hoop line, for a bourbon cooperage.** Press and straightener skids integrated under new controls and safety rated PLC hardware, run off at IAS against 30 piece capability studies on three hoop styles at FAT, then delivered for site acceptance.
- **Standing controls support.** Roughly twenty remote and onsite engagements for distilling and cooperage plants in 2025 alone. Customer names stay out of print and are shared in conversation.

UL 508A panel shop, UL file E549156, with a UL qualified Manufacturer Technical Representative on staff. Rockwell Automation OEM Partner Program participant with a licensed Studio 5000 and FactoryTalk toolchain. Autodesk Inventor and Vault design stack. 130,000 square foot manufacturing facility on 4.5 acres at 2138 N 6th Ave, Evansville, Indiana.

**IAS-IN.COM**

The IAS Osprey product sheet, the phased process and the demonstration set.

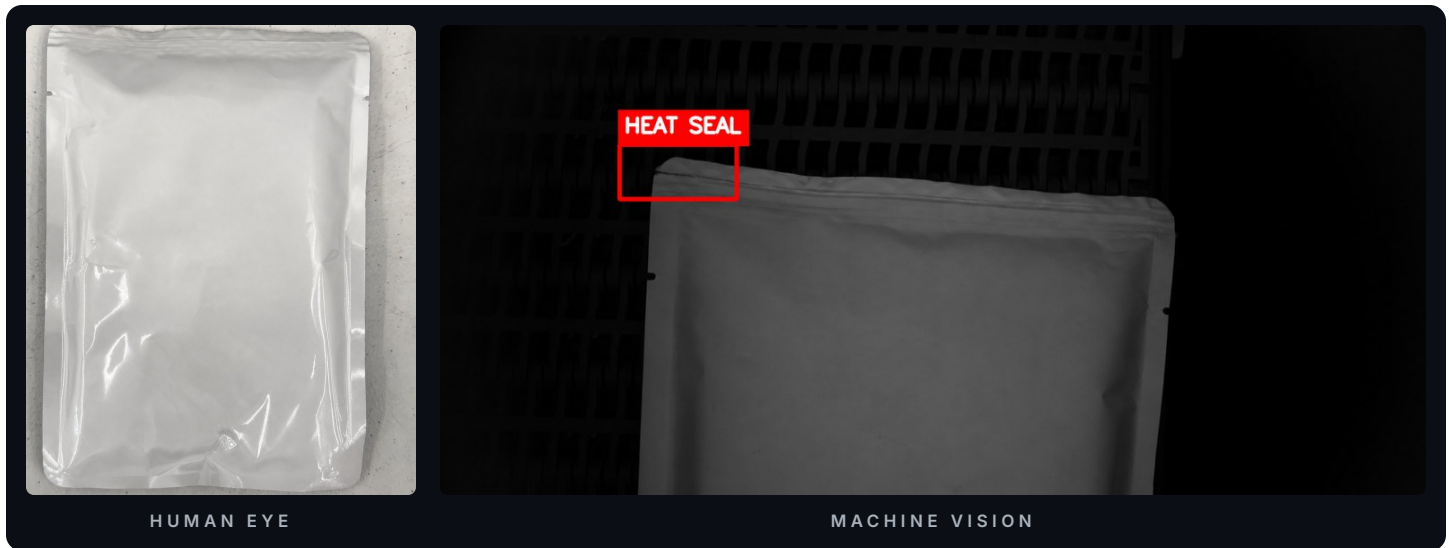
WHERE TO START

If your operators can see the defect, but conventional machine vision cannot reliably detect it, show it to IAS. Call 812-213-0557 or write info@ias-in.com.

IAS OSPREY.

AUTOMATIC DEFECT INSPECTION, BUILT ONTO YOUR EXISTING LINE.

Every defect on this sheet can be caught by a person. Just not on every product, at full line speed, for a full shift, without drifting, with no sick days and no call ins. IAS Osprey is a defect inspection system built onto the packaging line you already run. It photographs every product, grades it with AI models trained on your own defects, and rejects bad product automatically at line speed. Every product gets a verdict, and every verdict is acted on.



■ A heat seal defect on a production pouch. Easy to miss on the bench at left. Unmistakable in the inline inspection frame at right.

±0.002 in

Registration accuracy at 500 ft/min

339 /min

Measured on one lane; rate depends on pouch size and spacing

0 silent escapes

A product with no verdict is rejected and counted, by design

9 defect classes

Demonstrated from physical samples; your classes are custom to your product

Every performance figure on this sheet is measured on the running machine, published in a component manufacturer's datasheet, or derived from those two with the derivation on file. None are estimates. Registration and trigger figures describe the controls chain. Mechanical conveyance error, meaning wheel slip, belt stretch and encoder runout, is not included and is qualified on your line, and inspection above 350 ft/min is qualified against installed optics and lighting.

THE SIGNAL CHAIN

Accuracy at line speed

Inspection only counts if the accuracy holds at full line speed. IAS Osprey holds it, so every product gets a verdict and every verdict lands on the product that earned it.

01

DETECT

Every product is picked up the moment it enters the inspection zone.

02

TRACK

The system follows each product down the line at full line speed.

03

IMAGE

Each product is photographed at exactly the right moment.

04

INSPECT

AI grades every image against the defect classes that matter for your product.

05

REJECT

Bad product is removed automatically, and every rejection is logged.

MEASURED ON A PACKAGING LINE

Performance at a glance

SPECIFICATION	VALUE
Inspection rate	339 products per minute measured on a single lane; rate depends on pouch and product size
Registration accuracy, controls chain	±0.002 in at 500 ft/min
Camera trigger accuracy, controls chain	±0.004 in at 500 ft/min
Imaging	Camera and optics selected per product being inspected; hardware triggered on position
AI inference	Anomaly detection, classification and segmentation, combined per application; models validated against held-out images
Coverage	Every product inspected or fail-safe rejected; overlapped product tracked and counted
Environment	Stainless construction and washdown rated enclosures available for sanitary areas
Line interface	Native EtherNet/IP verdict exchange with the line controller; fails safe on link loss
Built and supported	Panels from our UL 508A shop; lifecycle support under Osprey Assist, with data analytics dashboards for quick decision making

THE ENGINEERED PACKAGE

What every system includes

- **AI runtime.** Inference tuned to your line and defect classes.
- **On-machine image collector.** Capture and labeling by defect class and SKU.
- **Operator HMI.** Recipes, live defect imagery, counts and plain language faults.
- **PLC interface library.** Drop-in blocks for native EtherNet/IP verdict exchange.
- **Event and image logger.** Every verdict logged with its image and timestamps.
- **Hardware specified per application.** Camera, lighting and compute are selected for your product and defect classes.
- **Designed onto your line.** Inspection can mount over your existing conveyance, run on its own frame, or handle product another way, such as a robotic arm presenting product to the camera.

DEPLOYMENT ENGINEERED PER APPLICATION Compute and hosting for the runtime are specified to your line, your plant standards and your security requirements during feasibility and validation.



PUBLISHED AND DERIVED, WORST CASE

Accuracy against line speed

LINE SPEED	REGISTRATION ERROR	TRIGGER ERROR
100 ft/min	0.00118 in	0.00156 in
200 ft/min	0.00136 in	0.00212 in
300 ft/min	0.00154 in	0.00268 in
400 ft/min	0.00172 in	0.00324 in
500 ft/min	0.00190 in	0.00380 in
750 ft/min	0.00235 in	0.00520 in
1000 ft/min	0.00280 in	0.00660 in

Registration error stays under three thousandths of an inch at every speed in the table, including 1000 ft/min. Error grows with speed. Figures above 350 ft/min describe controls capability only. Inspection at those speeds is qualified against the installed optics and lighting before it is quoted.

VALIDATED ON REAL PRODUCT

Measured on a customer's production line

A food producer brought IAS in for seal inspection on a flexible pouch line. Confirmed defect examples were scarce when training began, so IAS built the training data the models needed: 6,700+ inspection camera images, over 4,000 reviewed annotations and about 80 model training iterations.

- **80,000+ images captured on the customer's line at production speed**, with two cameras acquiring simultaneously, separate from the training set above, with no missed triggers and no dropped verdicts: the full round trip from registration sensor to camera to inference to the PLC verdict.
- **The primary seal defect model deployed at 99.1% measured precision**, validated against held-out images the model never trained on, with under 1% of good product falsely rejected at the production confidence threshold. Escape rates are measured per application and delivered in your validation report. The vision runtime passed 362 automated tests before it ran on the line.
- **No honest vendor promises 100% detection**. These results are one application; catch rates are quoted per application, after a paid feasibility study and production validation. Never from a brochure.

THROUGHPUT

Line speed follows from pouch size and pitch

PRODUCT PITCH	FT/MIN	M/MIN	PRODUCTS/MIN
4 in	113	34.4	339
8 in	226	68.9	339
12 in	339	103.3	339

THE AI CORE

How the AI runs in production

- **Multiple inference methods per product**. Anomaly detection, defect classification and segmentation, combined per application, and every deployed model is validated against held-out images first.
- **Fail-safe by design**. No verdict, a missed capture or a broken model all resolve the same way: the product is rejected. Anything the system cannot account for is alarmed and counted, never passed quietly.
- **Every product inspected, measured at 339 per minute on a single lane**, including overlapped and shingled product.
- **Every verdict is logged** with its image, timestamps and reject reason, in an audit catalog built for reconciliation.
- **It learns your product**. On-machine collection captures production frames with their verdict, image and SKU. Models retrain on your product, not a stock dataset.
- **Built to be run by operators**. Recipe by SKU, on screen tolerance tuning, live defect imagery and a plain language fault list with first-out capture.

MEASURED, PUBLISHED, OR DERIVED None are modeled. The full engineering derivation behind every figure on this sheet is available on request, and detailed validation reports are delivered as part of every feasibility and validation phase.

YOUR DATA AND YOUR NETWORK

- **Your images and defect data remain yours**, used for one purpose: building and supporting your models. They are never used for another customer's system.
- **An NDA is standard before feasibility begins**, and image transfer, storage and retention are agreed in the project scope.
- **Remote access happens only by the method your IT approves**, and the runtime can operate without a plant-external connection where the application requires it.

THE DEMONSTRATION SET

Defect samples through the inspection camera

Real physical defect samples. To show the difference, we photographed each one two ways for this demonstration: on the bench as an operator sees it, and through the inline inspection camera.



◆ Seal Alignment

A crooked seal that reads as glare on the bench is unambiguous against the dark field of the inspection frame.



◆ Delamination

Layer separation at the seal edge, clear in the inspection frame.



◆ Edge Cut

A sliced edge the eye reads as a wrinkle in the film.



◆ Puncture

Two punctures on one pouch, both visible in the inspection frame.

SEAL ALIGNMENT

HEAT SEAL

SEAL POSITION

SONIC SEAL

EDGE CUT

PUNCTURE

DELAMINATION

ABRASION

FOLD

The classes are not fixed: models are trained on the defects your line actually produces. The demonstration set is packaging; the approach is not. Any visual defect a person can see is a candidate, from seal and closure integrity to surface damage, contamination, label and print faults and assembly errors. The engineered imaging chain makes the defect visible; the model turns it into a verdict at line speed. Side by side frames show the same physical defect sample through a bench camera and the inline inspection camera.

THE HARDWARE



◆ CAMERA FIXTURE

The mobile camera fixture from a pouch line application. Every Osprey is engineered to its application.



◆ OPERATOR STATION

Stainless washdown operator station from the IAS UL 508A panel shop.

WHERE TO START

If your operators can see the defect, but conventional machine vision cannot reliably detect it, show it to IAS. The fit review is free and takes 30 to 60 minutes. Call 812-213-0557 or write info@ias-in.com.

HOW AN IAS OSPREY PROJECT RUNS.

An inspection project should not start with a machine quote. It should start with a technical answer: can this inspection be automated reliably, yes or no. Every phase below is separately scoped and separately approved, and each one names exactly what you provide and exactly what you receive, so both sides know what done looks like before work starts.

This is the process for the IAS Osprey Inspection System. Machines, panels and retrofits are scoped and quoted job by job.

0

Inspection Fit Review

FREE · 30 TO 60 MINUTES

YOU PROVIDE

- The defect, with representative good and bad samples
- How the inspection is done today, and why it is still manual
- Line speed, product variation and SKU mix
- What the problem costs in labor, scrap, escapes or rework

YOU RECEIVE

- A straight answer on whether your application is a good fit for automated inspection
- A recommended next step, including conventional vision or an off-the-shelf sensor if that solves it cheaper
- A fixed scope Phase 1 proposal if the application is a fit

GATE Proceed only when the problem is technically plausible and economically meaningful, samples are available, and someone owns the eventual production decision. No accuracy promises are made at this stage.

1

Osprey Feasibility Study

2 TO 4 WEEKS

One question, answered quickly: can the defect be reliably distinguished from good product? We place an image capture station on your shop floor to collect data from real product running on your line. We then train the AI model to show a proof of concept.

YOU PROVIDE

- A spot on your shop floor for our image capture station, plus known bad examples for each defect class
- A network connection for the capture station, so collected images can be sent back to IAS; your images remain yours and are used only for your models
- Clear defect definitions and acceptance criteria
- Timely access to your subject matter experts

YOU RECEIVE

- A GO, CONDITIONAL GO or NO-GO recommendation
- Measured validation results from bench camera, lighting and model testing
- Known limitations and failure modes, in writing
- A recommended production architecture with a budgetary price range

GATE Proceed only on a GO or CONDITIONAL GO with the limitations in writing. A defensible no-go is a successful outcome of this phase, and this is the cheapest place to learn it. The clock starts once data collection is complete.

2

Production Validation

8 TO 12 WEEKS

We prove it on our line, set up to simulate yours at your required speed, before the machine is engineered.

YOU PROVIDE

- Representative product shipped to IAS in production quantity
- Operators and quality personnel for ground truth review
- Line details: speed, conveyance, spacing and reject window
- Written performance and acceptance metrics

YOU RECEIVE

- A production validation report
- Measured false accept and false reject rates against operator disposition
- A validated camera, lighting, compute and controls architecture
- Documented remaining risks and a defined Phase 3 quotation

GATE Before deployment is quoted, we ask you to reconfirm the business case, the budget path and the timing. If any of those have changed, the project stops here, on purpose.

3

Production Deployment

SCOPED PER PROJECT · SCHEDULE QUOTED AT THE PHASE 2 GATE

The validated application is engineered into a production machine, installed and accepted against written criteria.

YOU PROVIDE

- Approved system scope and purchase order
- Facility requirements and production line access
- Network, safety and plant standards
- Final FAT and SAT acceptance criteria

YOU RECEIVE

- A complete production inspection system, with reject handling and machine safety
- Control panels from our UL 508A listed shop, with full electrical and controls documentation
- The trained models and configured runtime for the contracted application, on a deployment architecture engineered to your plant standards
- FAT and SAT records, operator training and a handoff package

GATE Acceptance is against written FAT and SAT criteria agreed before the build. New SKUs, new defect classes and additional lines are scoped separately.

4

Osprey Assist

PER SITE, PER YEAR

Ongoing support, model management and retraining as products and line conditions change.

YOU PROVIDE

- Remote access when required
- Notice of product and SKU changes
- Representative samples for new defects

YOU RECEIVE

- System health and performance reviews
- Model and version management, backups and software support
- Data analytics dashboards for quick decision making
- Retraining for drift on covered SKUs within the plan, and an optional annual onsite review
- Support hours and response commitments, defined in writing in the agreement

SCOPE A deployment covers the SKU set named in the acceptance criteria. New SKU or new defect packages are quoted by complexity, and similar formats are typically grouped into one package rather than quoted per label. New lines and new sites are new deployment scopes.

ALIGNMENT

The rules both sides can count on

Separate approvals

Each phase is approved on the results of the one before it. No open-ended engineering, and no surprise scope.

Written acceptance

Every phase has acceptance criteria in writing before work starts, so done means the same thing to both of us.

Your schedule

Schedules start when each phase has the data and samples it needs.

We stop at no

A no-go or a changed business case ends the project cleanly. We do not rescue a dead project with more engineering.

WHERE TO START

If your operators can see the defect, but conventional machine vision cannot reliably detect it, show it to IAS. For defects that are hard to see with a standard camera, we can also apply other types of sensors. Call 812-213-0557 or write info@ias-in.com; we usually reply within 24 to 48 hours.