



AV GAUGE & AUTOMATION

CMMbot

AUTOMATED QUALITY GATE

*CMM-Grade Precision
+ Production Quality
Verification*

**Inline,
End-of-Line,
or Offline
Deployment**



**CMMbot brings lab-grade robotic metrology,
functional assembly verification, and full digital
traceability directly to the production floor**

One Automated Quality Gate Replaces Multiple Disconnected Steps

Production Quality Challenges



Manual
Gauges



Stand-Alone
Vision



Offline
CMM



Operator-
Dependent
Verification



Integrated robotic
inspection delivers
dimensional proof,
functional verification,
and traceability for
every cycle.



Geometry & GD&T



Assembly
Conditions



Fit



Seating



Flushness



Presence /
Orientation /
Completeness



Traceability

P/N: 12345678
S/N: 10001234



Ultimate Application Flexibility

One platform capable of supporting multiple materials, manufacturing processes, functions, and product types.

From lighting, glass, closures, and trim to structural components, stampings, weldments, molded, cast, and machined parts.

Built for demanding production environments and advanced manufacturing applications across automotive, aerospace, defense, energy, agriculture, and medical industries.



LIGHTING



GLASS



CLOSURES



TRIM



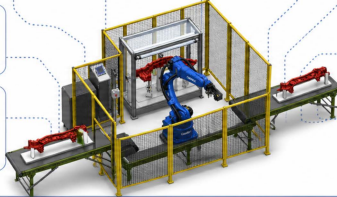
STRUCTURAL
COMPONENTS



STAMPINGS



MOLDED PARTS



WELDMENTS



MACHINED PARTS



AUTOMOTIVE



AEROSPACE



DEFENSE



ENERGY



AGRICULTURE



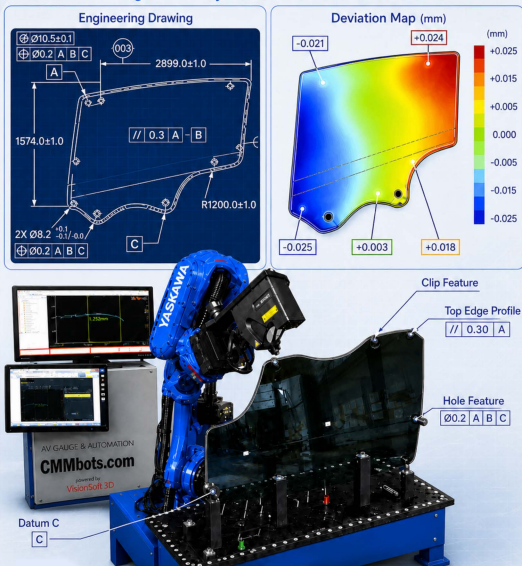
MEDICAL

CMMbot is not just a measuring robot. It
is a complete automated quality gate for
production manufacturing

Automated End-of-Line Quality Gate

Dimensional Inspection

High-Accuracy GD&T Verification with CMMbot



Functional Verification



CMMbot combines **lab-grade metrology** and **real-time functional validation** into a single automated inspection process

Flexible Inspection

Throughout the Manufacturing Process



Performance Snapshot

Accuracy & Repeatability

- Surface Points: ± 0.060 mm
- Trim Edges: ± 0.060 mm
- Holes / Slots / FOS: ± 0.075 mm
- Studs / Fasteners: ± 0.080 mm

System Repeatability

- ± 0.035 mm via alignment, calibration, and thermal compensation

High-Speed Production Performance

- Engineered for real manufacturing takt times:
- **<1.5 seconds per inspection point**
- Supports **high-volume, multi-shift production**



AV Certified Quality System

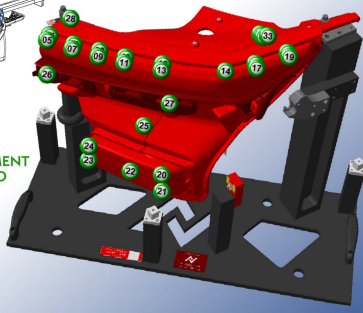
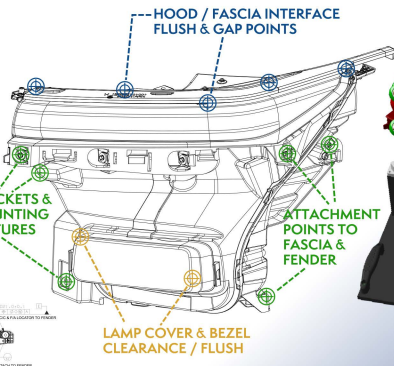
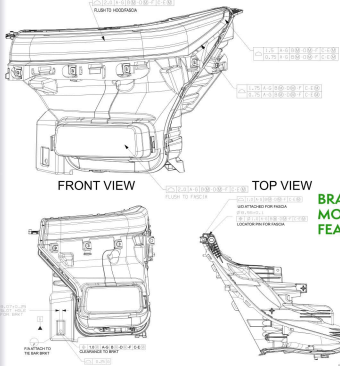
Turning CMMbot Technology into Trusted Production ROI

1. Measurement Strategy

GD&T REQUIREMENTS

MEASUREMENT PLAN

CMMBOT PROGRAM



Driven by GD&T

Measurement plan aligned to engineering intent and datums

Focused & Efficient

Targeted measurement points for critical features and interfaces

Ready to Measure

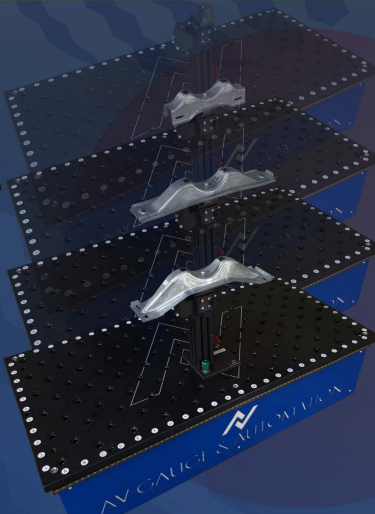
CMMbot program optimizes speed, accuracy and repeatability

2. Modular Precision Fixturing

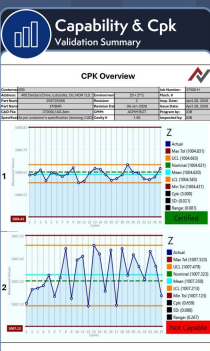
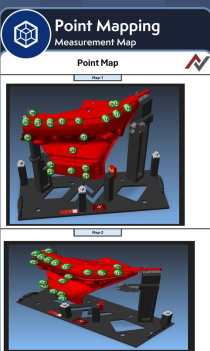
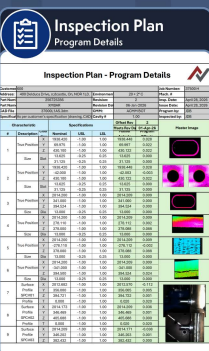
Strategically optimized part locating for repeatable robot inspection

Quick-change modular fixtures for mixed-model and flexible production

Engineered for speed, access, accuracy, and long-term durability



3. Certified Validation & Calibration



Traceable Results. Accredited Certification. Proven Capability.

ISO 17025 accredited system certification process

Direct correlation to offline CMM results

Certified artifacts and built-in calibration routines

Annual validation support to maintain long-term measurement stability

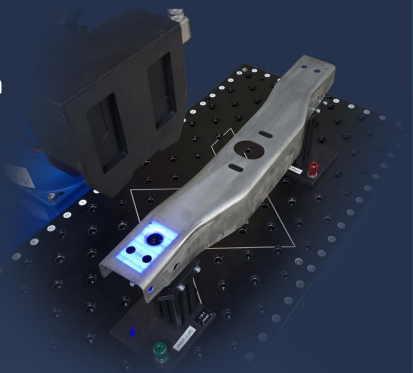
AV provides the strategy, tooling, validated programs, and certification support required to make robotic inspection accurate, repeatable, and production-ready

Multi-Sensor Inspection Platform

One robot. Multiple inspection technologies. Complete coverage.

3D Snapshot Scanning

- High-resolution capture of discrete area geometry, surface contour, and profile.
- Feature measurement, true position, pitch, local patterns, and feature sizes.
- Ideal for multiple inspections across a variety of opaque part features.



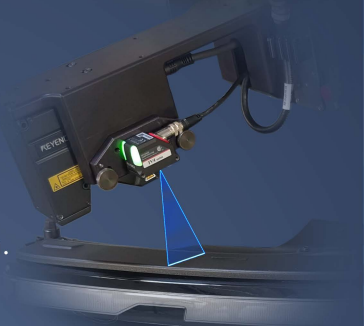
Laser Profiling

- High-speed scanning of transparent/reflective/glossy surfaces found in lighting, glass, machined and coated part applications.
- No need for surface developer spray or use of secondary optical targets.
- Stable in complex optical environments, regardless of ambient light conditions.



2D / AI Vision

- Assembly validation and defect detection.
- AI assisted weld, sealant, adhesive, and paint condition verification.
- Barcode reading, label identification, date stamps, and part number identification.



KEYENCE



COGNEX

Ascend3D Software Intelligence Unified Sensor Ecosystem

All inspection technologies operate within a **single Ascend3D software platform**, enabling:

- CAD-driven robot paths from CAD and inspection point data
- Mixed-model inspection with automatic RFID program selection
- XYZ coordinate reporting, GD&T reports, point maps, image output, and inspection summaries
- Cp / Cpk monitoring, drift alerts, master offsets, nominal shifts, and thermal compensation reporting
- PLC integration, barcode scanning, label printing, and automated pass / fail containment

Ascend  **3D**
SOFTWARE

**Synchronized multi-sensor data acquisition
| Shared Inspection logic |
One interface for complete quality validation**

WHY AV

TRUSTED. ACCREDITED. PROVEN.



DEEP EXPERTISE

40+ years as an industry benchmark, with deep experience in production metrology, GD&T compliance, automated inspection, and assembly processes.



INTEGRATED CAPABILITY

300+ employees across fixture, gauge, automation, robotic inspection, inline measurement, and validation.



END-TO-END SUPPORT

Complete support from measurement strategy and tolerance stack-up through certified tooling, launch, certification, and ongoing validation.



ALWAYS THERE

Canada's Best Managed Platinum status, backed by responsive technical support, on-site programming, training, and production launch experience.

ACCREDITATIONS & RECOGNITION

 **BEST
MANAGED
COMPANIES**

Platinum member



ISO 17025
ACCREDITED
LABORATORY

TISAX
COMPLIANT

CANADA



USA



MEXICO



When the Process is Proven, the Results are Trusted.



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