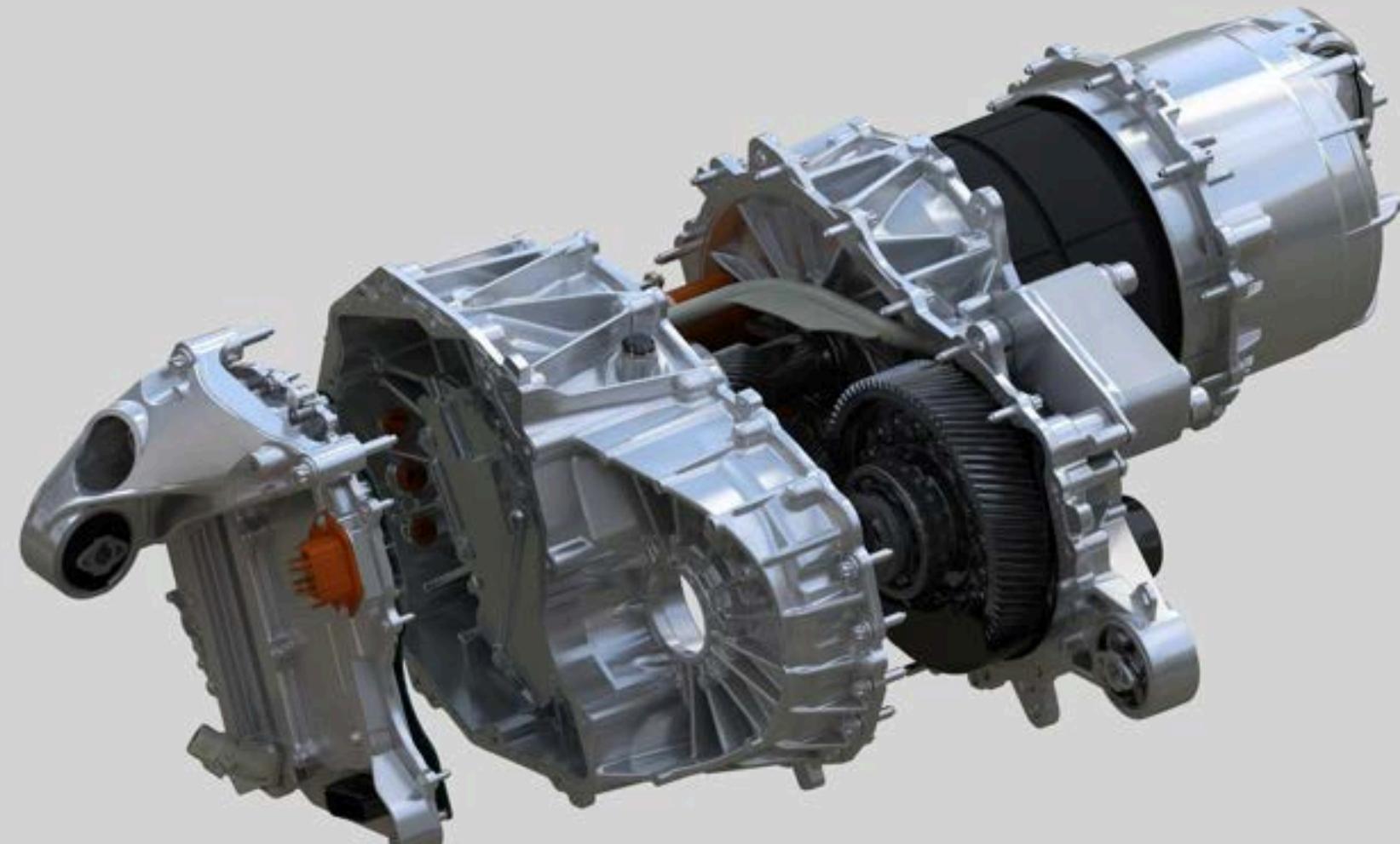


# Ontario Dynamics

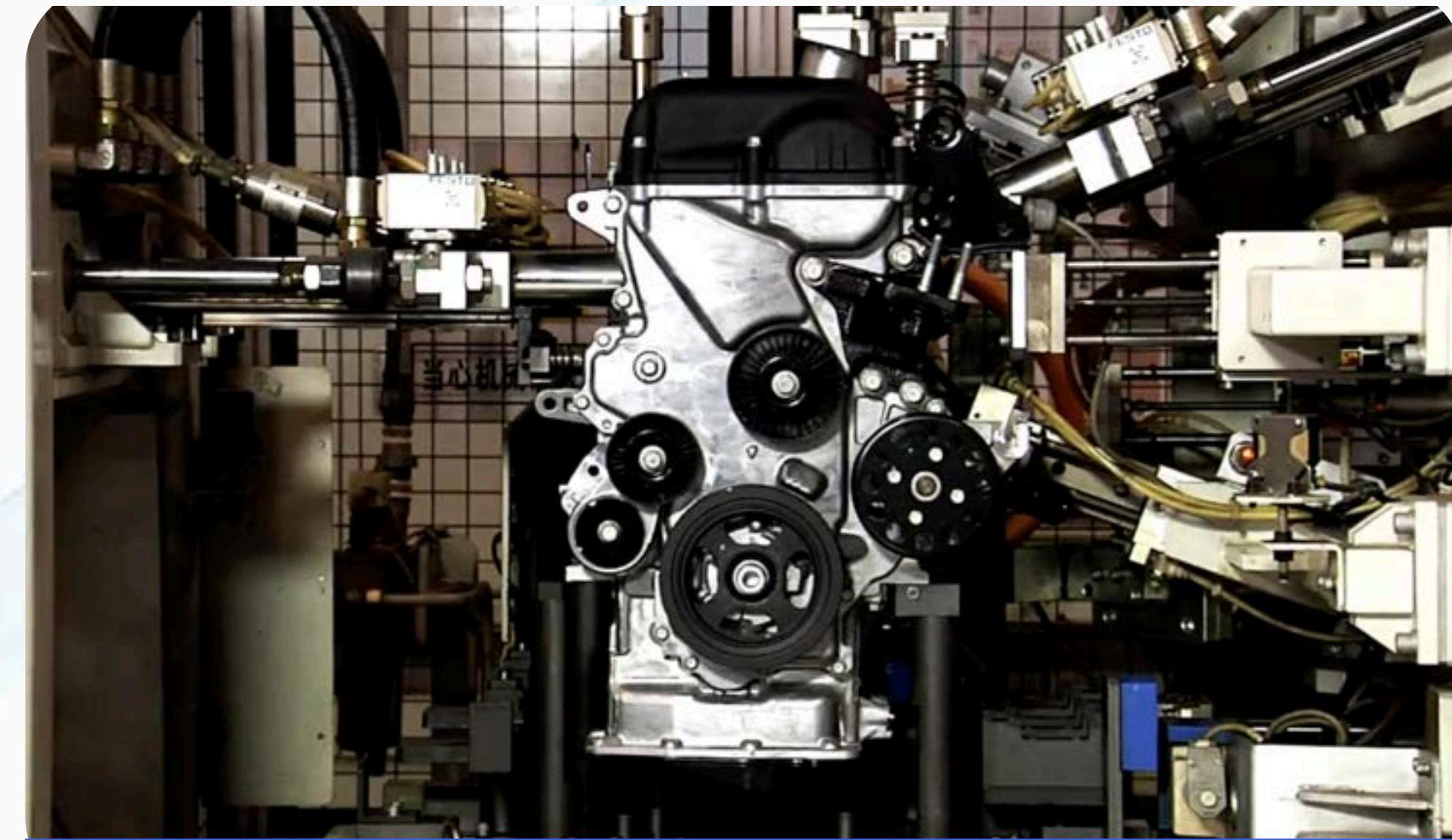


Your Partner in Product Development and Validation.



## Engineering & Design

Product Development



## Validation Testing

Real-World Performance Analysis



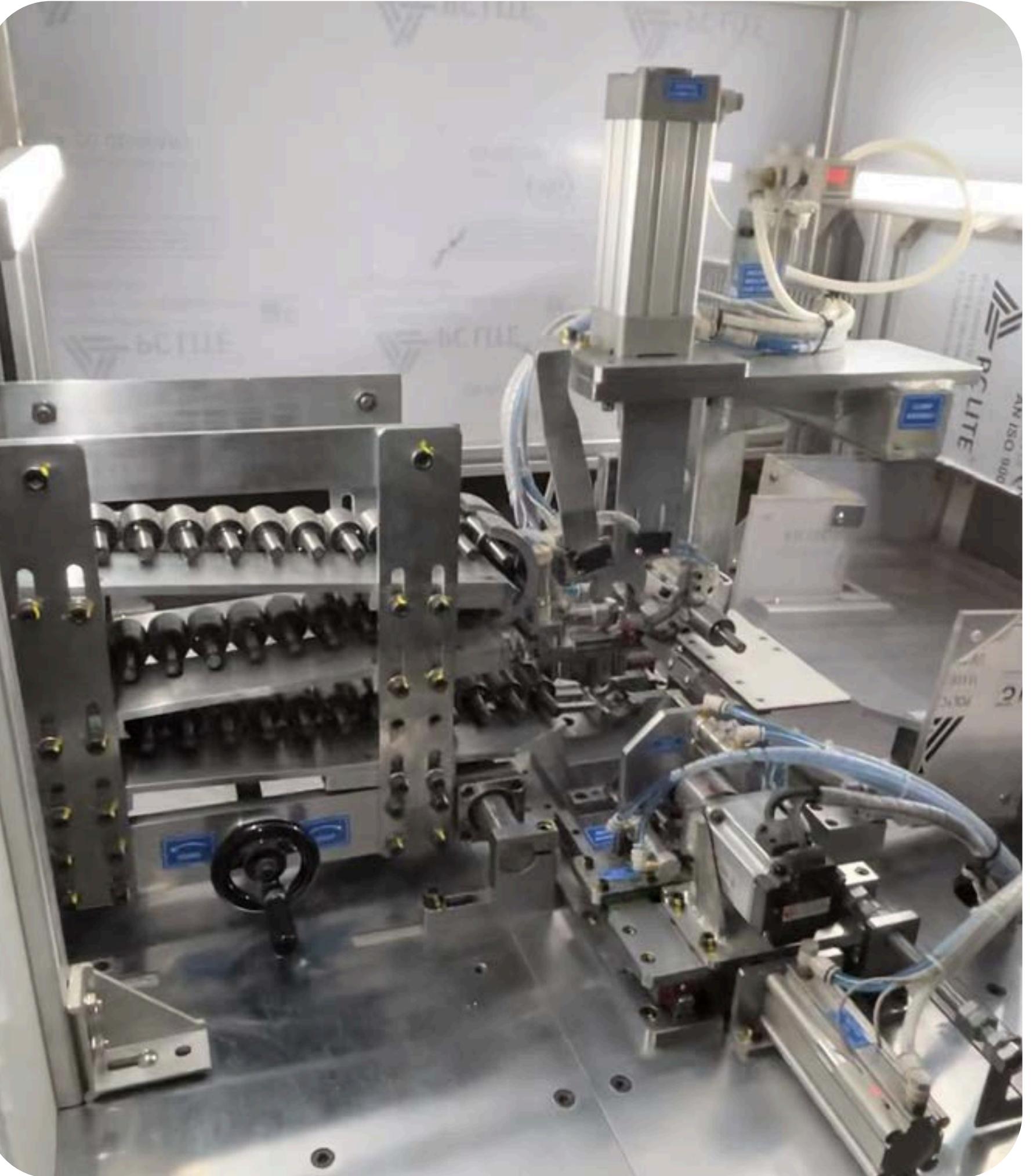
Company Overview



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- Industry challenges
- Product development services
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# Who we are?

We turn early-stage ideas into fully engineered, tested, and production-ready products.

-  **Expertise:** Multi-disciplinary team with 15+ years in mechanical design.
-  **Proven Track Record:** Delivered products like a 2-speed EV transmission and End-of-line inspection machines.
-  **Testing and Validation:** Custom test rigs, endurance benches, and inspection systems for automotive and industrial environments.

## One-Stop Solution

From concept & CAD to custom test benches, we offer fully integrated support to reduce risk and accelerate your development cycle.



# Industry Challenges



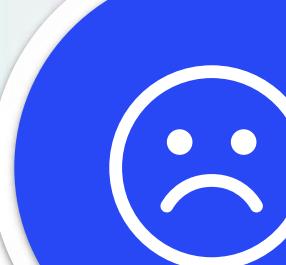
## Resource Gap

- Testing infrastructure
- Engineering bandwidth
- Specialized expertise
- Validation budget



## Budget vs. Needs

- High skill requirements
- Expensive prototyping cycles
- Tight funding constraints



## Fragmented Outsourcing Challenges

- Multiple vendors
- Disconnected workflows
- No single ownership
- Communication gaps
- Poor documentation
- Rework and delays

## The Solution Need

Companies need a single, trusted partner to handle design, prototyping, and validation under one roof.

# Product Development Services

We transform ideas into engineered, validated, and production-ready mechanical products.

## Full-Cycle Development

- From concept to prototype & production



## DFM & Cost Optimization

- Supplier-ready design documentation
- Minimum part count



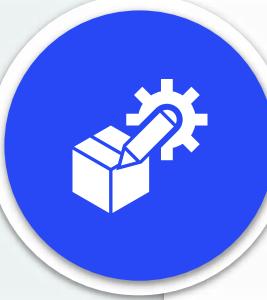
## CAD & Simulation

- SolidWorks, Onshape, Inventor (GD&T ANSI Y14.5)
- FEA, tolerance analysis, & stress validation
- PLM-ready documentation & BOMs



## Prototyping & Iteration

- In-house & partner builds (Form-Fit-Function)
- Purpose build validation infrastructure



## Risk & Quality Assurance

- DFMEA
- DVP&R
- 8D Root Cause Analysis & Phase Gates



## Communication & Control

- Single point of contact & weekly updates



# Testing and Validation Services

We engineer test systems that replicate real-world conditions and generate the data needed to validate performance.

## ⌚ Custom Test Benches

- ▶ Full-cycle validation rigs: tailored to your specific application.
- ▶ Durability, fatigue, and performance test benches.

## ⌚ Environmental Simulation

- ▶ Replicate field loads, temperatures, vibration, and dynamic motion profiles.
- ▶ Validate durability through realistic duty cycles and extreme-condition stress testing.

## ⌚ Endurance, fatigue, and lifecycle test benches.

- ▶ Full sensor integration: Force, torque, pressure, displacement, vibration.
- ▶ Custom DAQ systems (NI, embedded Linux, microcontrollers).

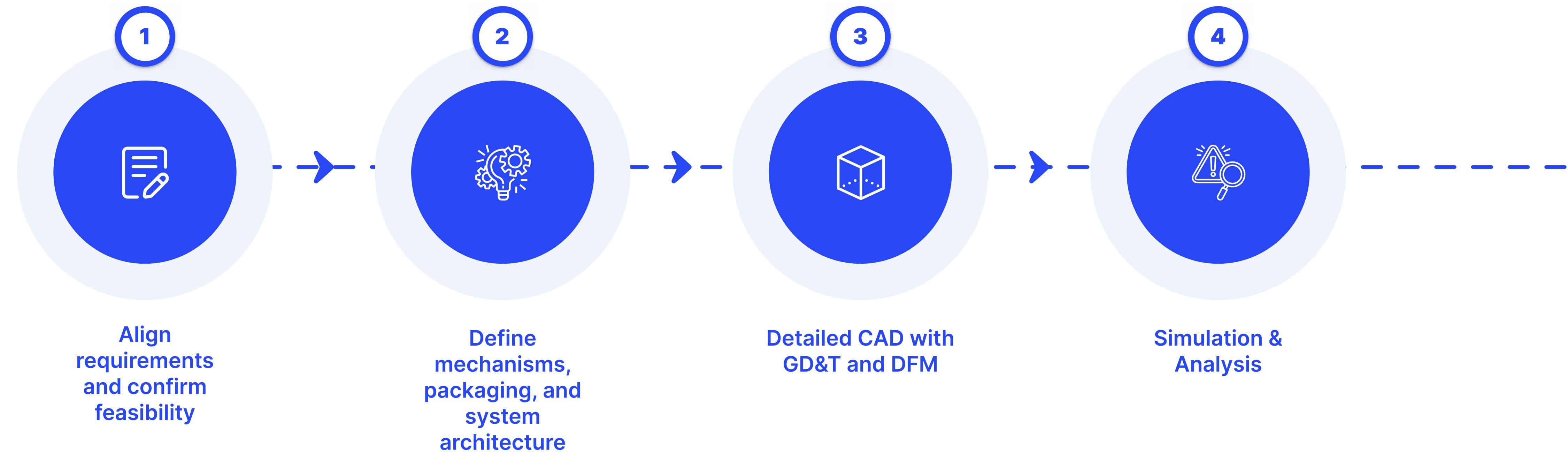
## ⌚ Data Analysis & Reporting

- ▶ High-resolution data logging with automated signal processing, failure detection, and limit monitoring.
- ▶ Custom reports for DVP&R, compliance, and root-cause analysis (8D, FMEA).



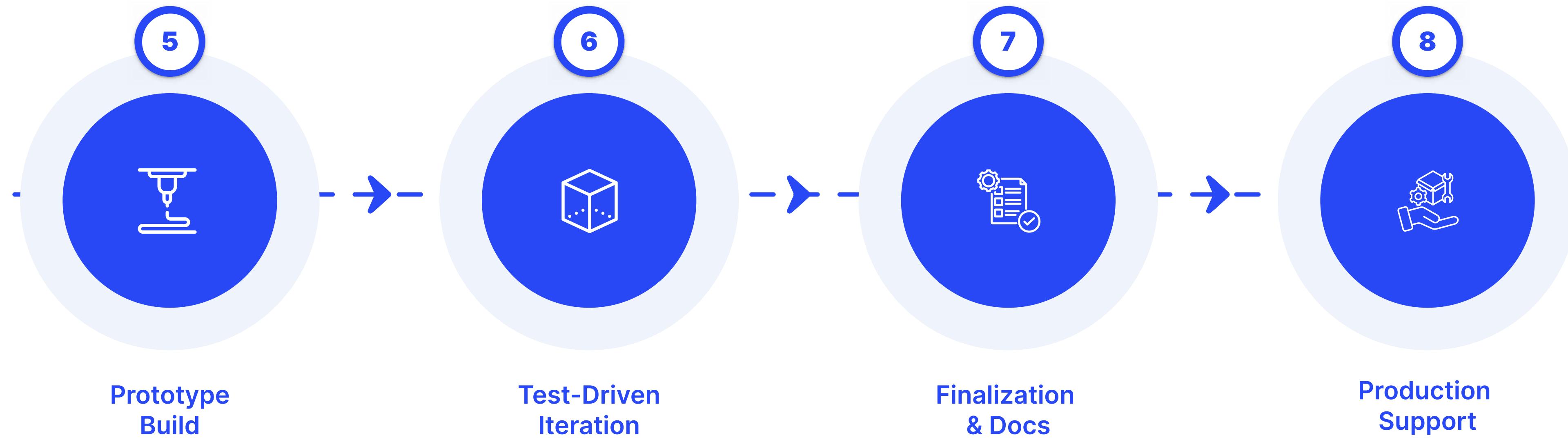
# Our Process – Product Development

End-to-end engineering excellence from concept to production support.

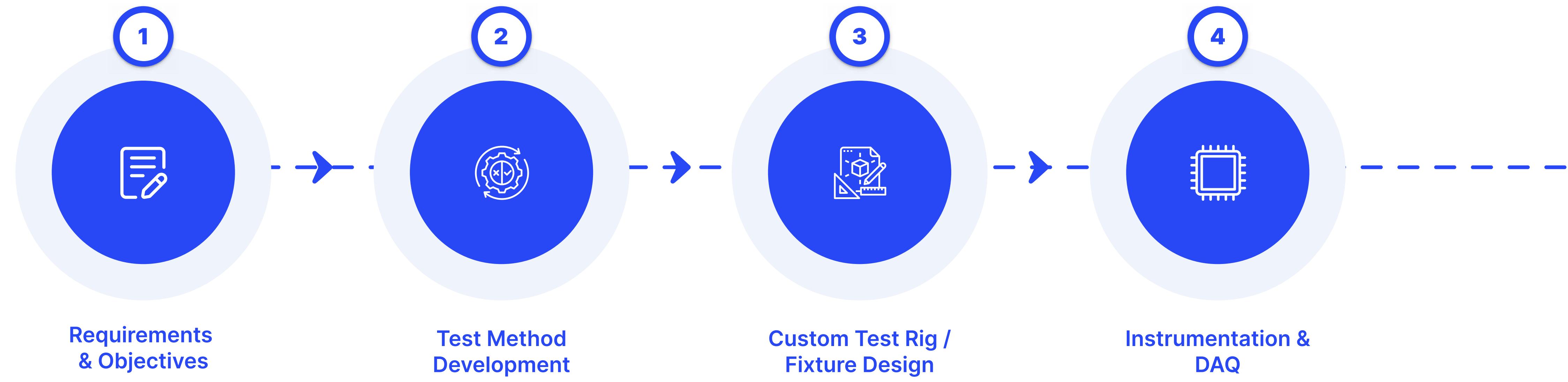


# Our Process – Product Development

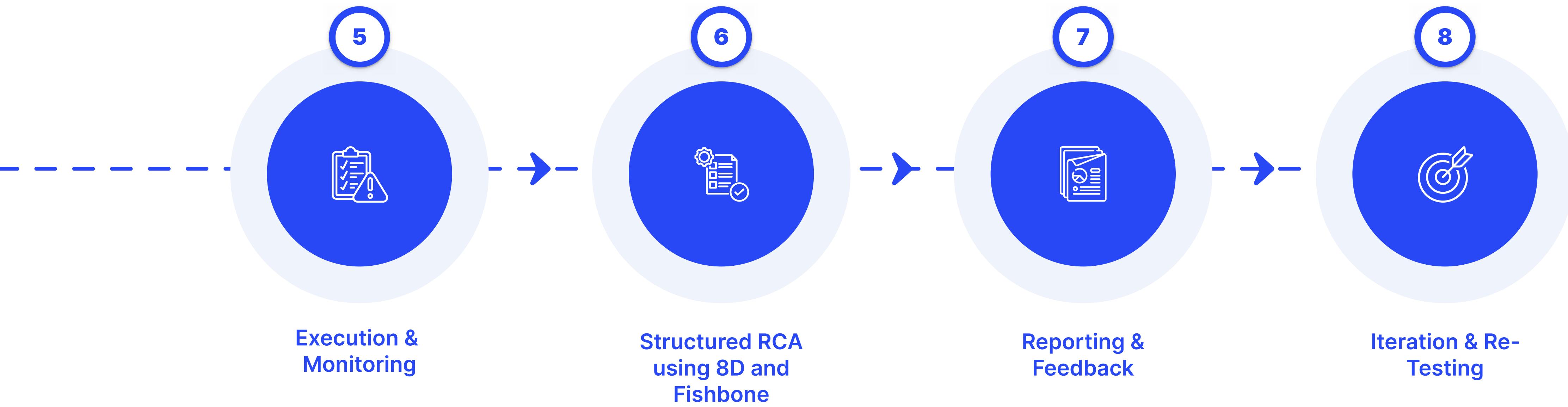
End-to-end engineering excellence from concept to production support.



# Our Process – Testing and Validation



# Our Process – Testing and Validation



# Past Projects and Success Stories

Confidential

## Novel electric vehicle transmission development and validation

- Complete transmission design, simulation, prototyping, and vehicle integration.
- Custom test rig development and full validation.
- Successfully tested by client in Japan

▲ Challenge:

- Transmission development completed in 15 months
- Parallel vehicle integration in 10 months

👤 Client: Canadian Startup

Image has been blurred to protect confidentiality.



# Past Projects and Success Stories

Confidential

## Bearing noise and vibration detection machine – Mass production line

Design and development, Data Disquisition System  
ingratiation, manufacturing and supply.

- Noise and vibration checking.
- Axial Loading
- High speed rotation - 6000rpm
- Data Recording & Report generation

 **Challenge:** Isolate motor noise from test specimen noise.

 **Client:** Automotive Tier 1



# Past Projects and Success Stories

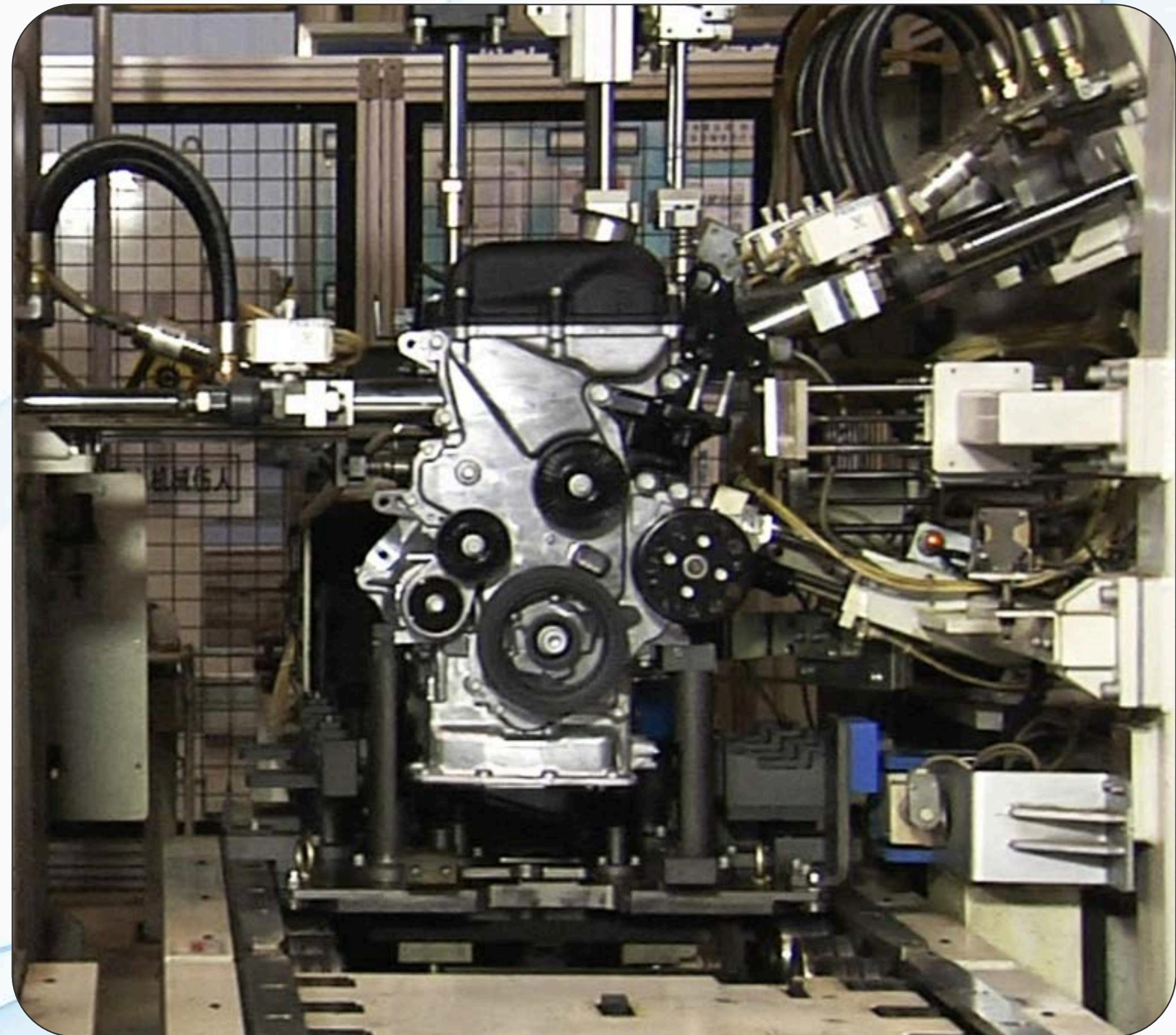
Confidential

## End-of-line cold engine test bench for performance evaluation.

- Achieved 100% inline inspection for torque, NVH, leak, and rotation quality.
- Reduced manual inspection time by >70% through automated cold-run testing.
- Delivered measurement repeatability within  $\pm 1\text{--}2\%$  across high-volume production.
- Enabled OEM to catch defects before shipment, cutting rework/warranty issues by up to 40%.
- 30% reduction in cost compared to Japanese manufacturer.

📍 **Challenge:** Isolate motor noise from test specimen noise.

👤 **Client:** OEM, India



# Past Projects and Success Stories

Confidential

## Engine assembly washing machine – mass production

- 95–99% contaminant removal (ISO 16232 / VDA 19 levels).
- <200–500 µm residual particle size.
- 30–50% higher throughput vs manual/semi-auto washing.
- 35–50% fewer cleanliness-related defects.
- 25–40% lower maintenance intervention with auto-filtration.

 **Challenge:** Noise level less than 65 dB, accommodate different engine variants.

 **Client:** OEM



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# Past Projects and Success Stories

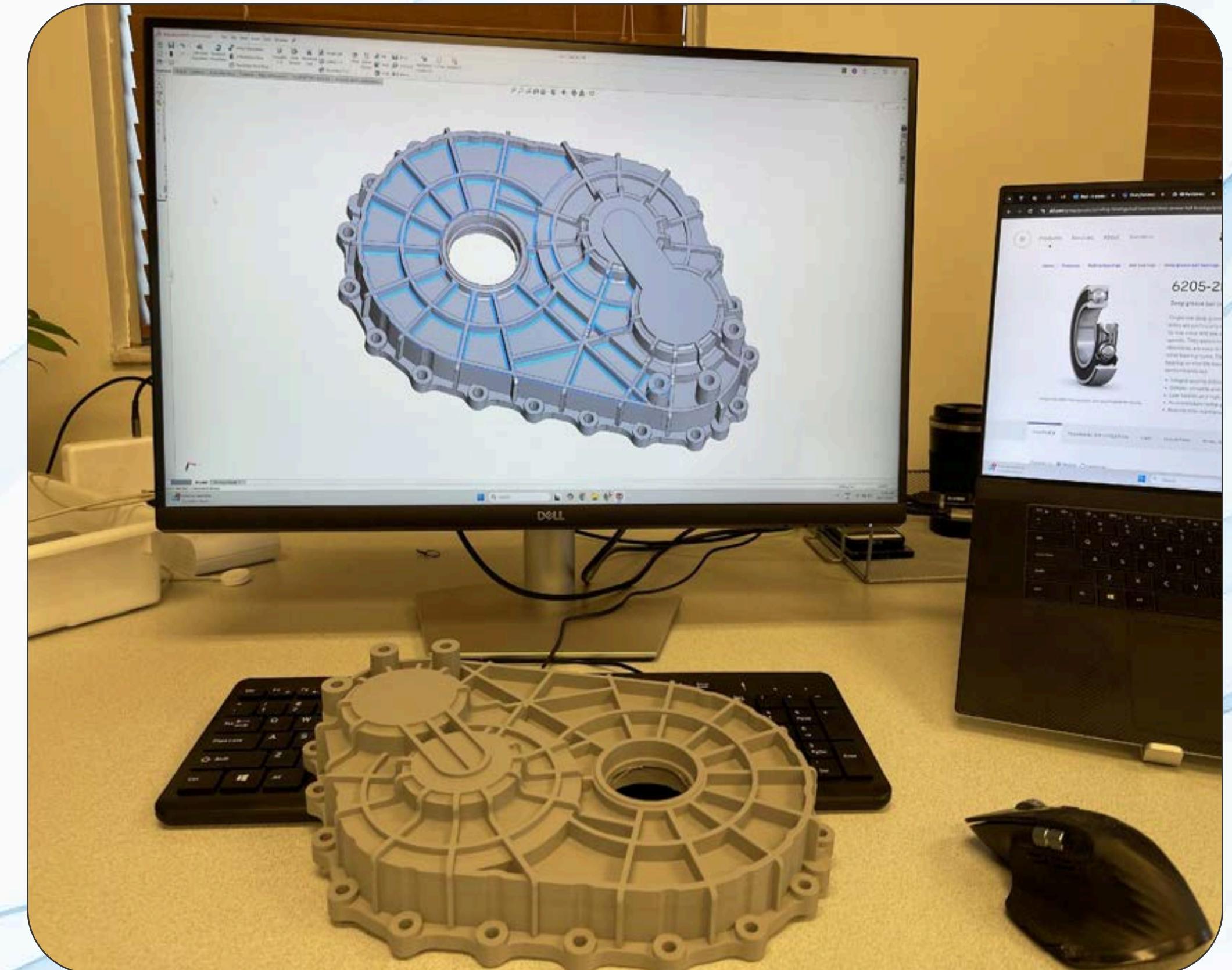
Confidential

## Automotive parts – Case design for powertrain

- CAD + engineering development of a prototype powertrain housing.
- Structural analysis, packaging refinement, and manufacturability checks.
- Prototype-ready documentation for machining and testing.

 **Challenge:** Ensuring manufacturability of a complex geometry with prototype machining limits.

 **Client:** Automotive, Canada



# Past Projects and Success Stories

Confidential

## Engine performance evaluation test bench

- High-resolution measurement of torque, airflow, pressure, temperature & NVH.
- Enables calibration, performance mapping & thermal/ performance analysis.
- Provides repeatable, lab-grade conditions for prototype engine refinement.

 **Challenge:** High resolution data capturing and visualization

 **Client:** Automotive, OEM



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# Past Projects and Success Stories

Confidential

## Drive train component detection machine.

- Inline inspection system ensuring 100% verification of drivetrain assemblies.
- High-speed detection with precise sensor fusion (vision, proximity, torque/position feedback).
- Delivers consistent zero-defect quality without slowing the production line.

📍 **Challenge:** Detect component visually hidden. Multi model compatibility

👤 **Client:** Automotive, OEM

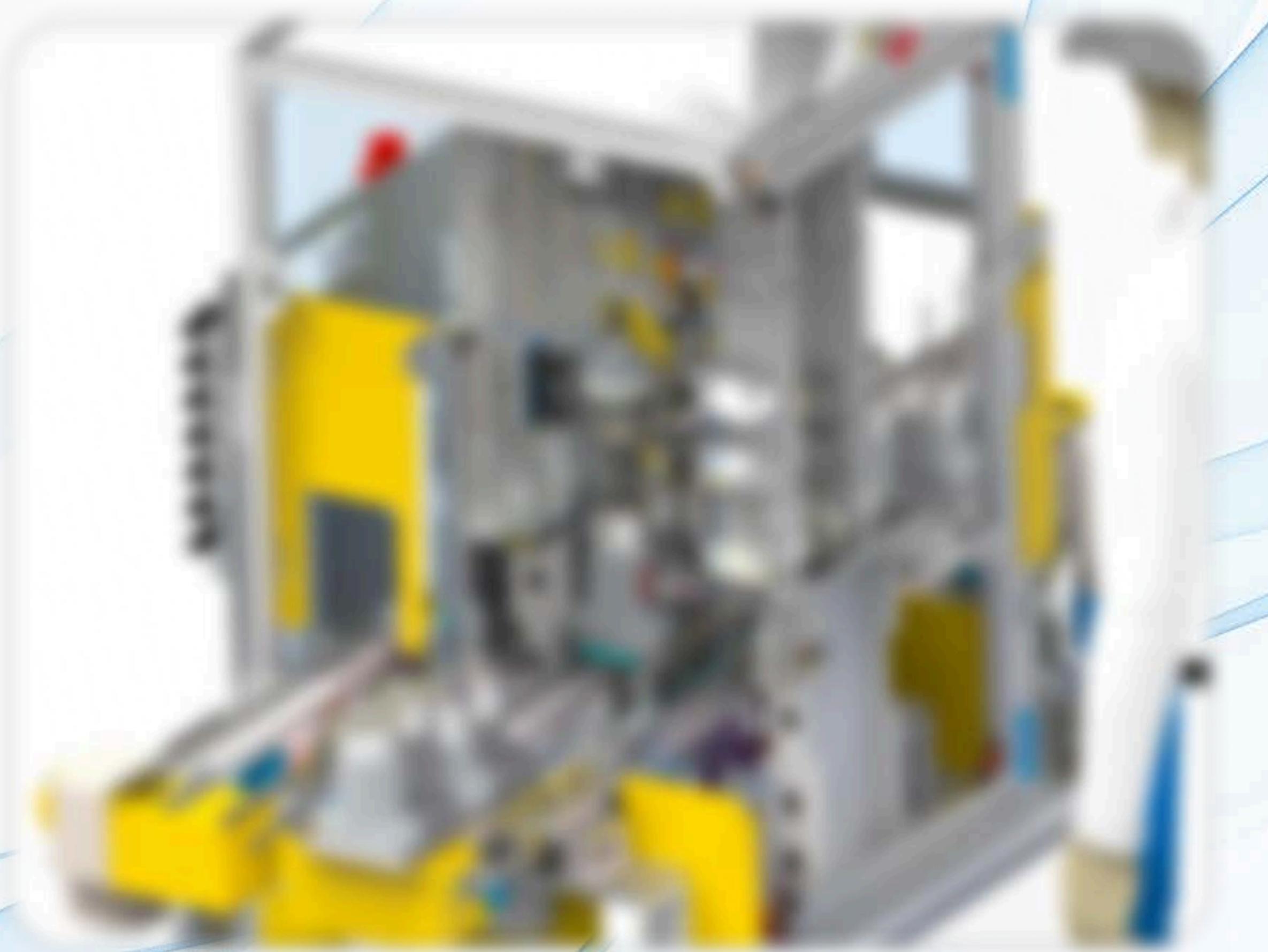


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# Past Projects and Success Stories

Confidential

## Weldment fixtures for automotive door panels.

- Precision fixtures to accurately locate and clamp door panels for welding.
- Ensures repeatable geometry, tight tolerances, and high welding quality.
- Designed for durability and consistent operation in high-volume production.



📍 **Challenge:** 3 months lead time

👤 **Client:** Automotive, Tier 1 supplier, India

# Past Projects and Success Stories

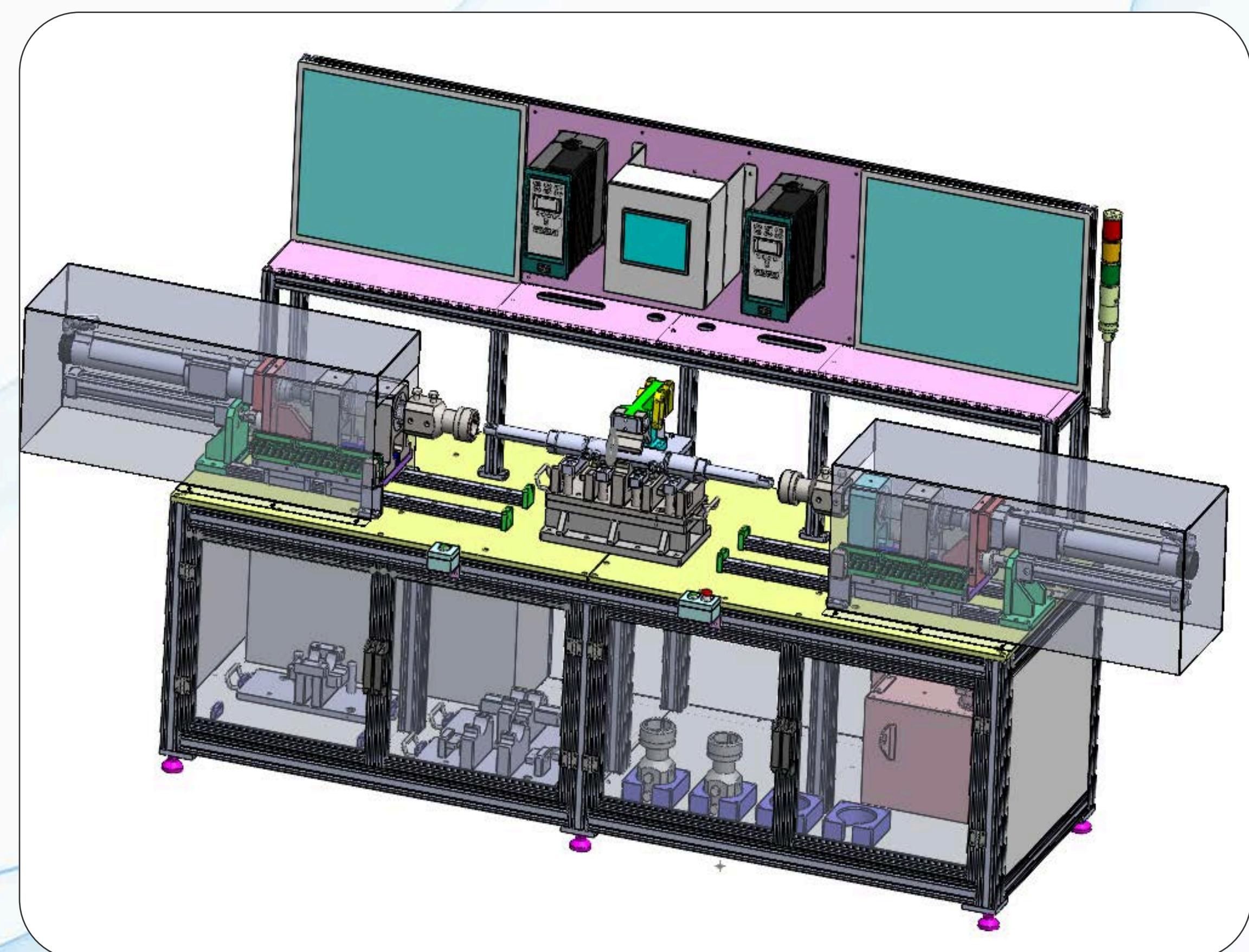
Confidential

## Both side Gland tightening with 2 horizontal head with DC nut runner

- Simultaneous, torque-/angle-controlled tightening on both glands, removing operator variability.
- Traceable tightening data at line speed for consistent sealing quality and fewer reworks.

📍 Challenge: Operator safety and line speed.

👤 Client: Automotive, Tier 1 supplier, India

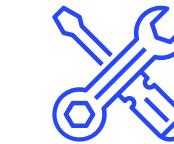


# Core Design Capabilities



Design Engineering Team onshore and offshore team.

## 10 Engineers



Core CAD/CAE Software

SolidWorks

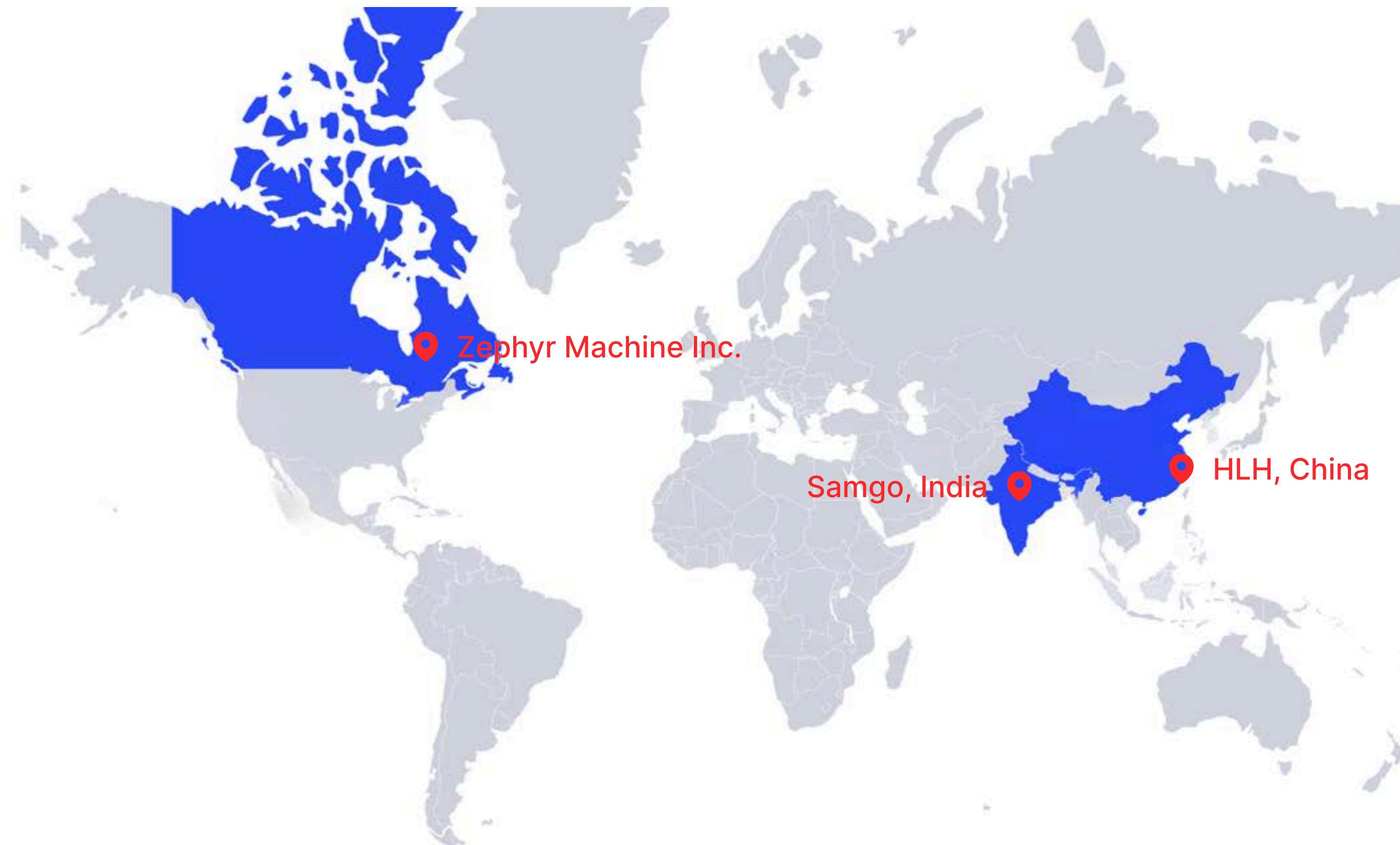
Unigraphics (NX)

AutoCAD



# Manufacturing partners

Over 15 manufacturing partners across the globe.



# Why Choose Us



## Enterprise Validation, Low Cost

We provide validation expertise and custom test equipment without the overhead of a big OEM lab.



## Integrated Design + Testing

We close the loop between CAD → prototype → test → improvement, cutting down rework and delays.



## Senior Engineering, Fraction of Cost

Get high-skill CAD, FEA, DFM, GD&T, and documentation without hiring a full internal team.



## Clear Communication & Delivery

One point of contact. Weekly updates. Transparent timelines. PLM-ready documentation.



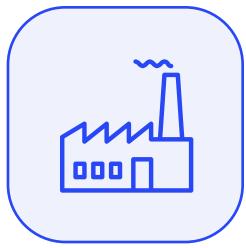
## Partnership & Ownership

We think with you, challenge assumptions, solve problems, and take responsibility for outcomes.



## Faster Time-to-Market

Agile iteration, rapid prototyping, and test-driven refinement help you ship faster reliably.



## Designed for Scale & Reliability

Every design meets manufacturing constraints, tolerances, and costs from day one (DFM, DFA, GD&T).



## Strong IP Protection

Strict NDAs, secure data handling, controlled access. Your product and IP are always fully protected.

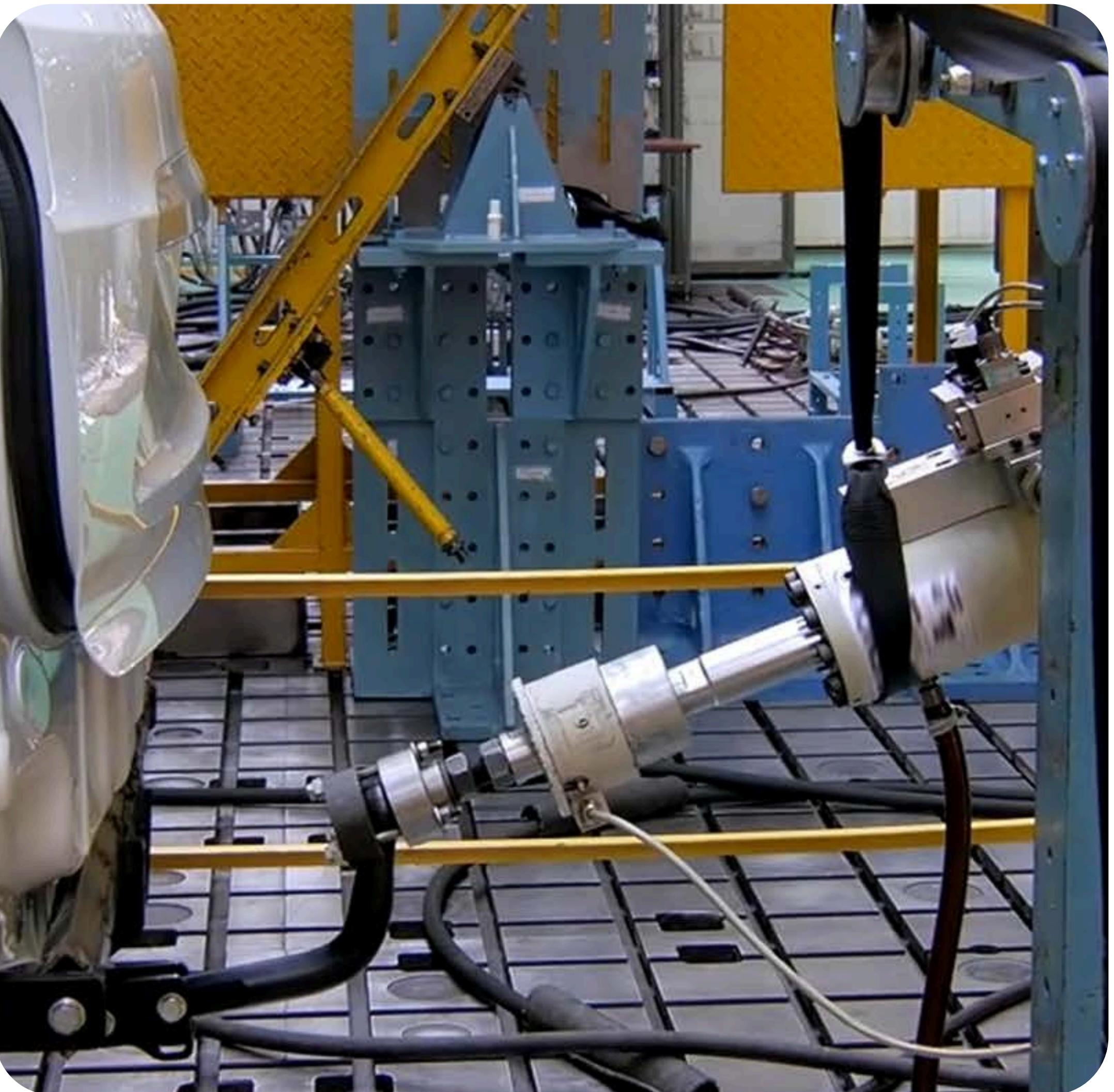
# Let's Build Your Next Product With Confidence

If you're developing a new mechanical product or need world-class validation support, we're ready to partner with you.

- ✓ Bring us your concept, prototype, or testing challenge
- ✓ We'll map a clear path from idea → design → prototype → validation
- ✓ Deliverables you can trust. Data you can rely on. Engineering you can scale with.

**Let's discuss your project.**

- ✉ contact@ontariodynamics.com
- 🌐 ontariodynamics.com





**Let's Engineer Your Next  
Competitive Advantage**

**Thank You**