

RIZAL DWI RAHMANTO

Manufacturing Design Engineer | CAD & Tooling Specialist | Process Optimization

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PROFESSIONAL SUMMARY

Results-driven Manufacturing Design Engineer and Supervisor with 9+ years of progressive engineering experience across international automotive and agricultural machinery manufacturing environments — including PT Mesin Isuzu Indonesia and Astra Otoparts Group. Currently leading a team of 4–6 engineers at Isuzu, overseeing the full manufacturing engineering function spanning SolidWorks CAD modeling, tooling & fixture design, GD&T, process improvement (Kaizen), time study & line balancing, digital work instruction development, 3D scanning & reverse engineering, FEA simulation, CNC coordination, and new product development. Proven ability to independently execute complex engineering deliverables from concept through mass production across multiple concurrent projects. Highly detail-oriented with strong technical documentation skills and a structured, self-directed approach to remote engineering execution.

CORE COMPETENCIES

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|-------------------------|--------------------|--------------------------|-------------------------|
| SolidWorks CAD Modeling | GD&T & 2D Drawings | Tooling & Fixture Design | Reverse Engineering |
| 3D Scanning Workflows | FEA Simulation | Process Optimization | Technical Documentation |
| Time Study & Analysis | Lean Manufacturing | Work Instruction Dev. | Root Cause Analysis |

PROFESSIONAL EXPERIENCE

Manufacturing Engineer — Supervisor

PT Mesin Isuzu Indonesia | Jun 2021 – Present

Indonesia

International Commercial Vehicle Manufacturer — Isuzu Motors Group | Model Range: Traga, N-Series, Giga

- ▶ Spearheaded multi-disciplinary manufacturing engineering function spanning CAD design, tooling & fixture development, process engineering, and new product development — supervising a team of 4–6 engineers and technicians across concurrent projects.
- ▶ Executed advanced SolidWorks 3D CAD modelling and 2D manufacturing drawing packages with full GD&T annotation for production tooling, fixtures, and new vehicle component designs — ensuring dimensional compliance with Isuzu global engineering standards.
- ▶ Led tooling and fixture design projects from concept through fabrication and validation, delivering custom jigs, fixtures, and gauging equipment that improved process accuracy and reduced setup time across multiple production lines.
- ▶ Drove Kaizen and process improvement initiatives through systematic time study and line balancing analysis; identified and eliminated non-value-added activities, contributing to measurable improvements in manufacturing cycle efficiency.
- ▶ Developed and maintained structured digital work instructions and SOP documentation within company workflow systems, standardizing operator procedures and reducing process variation across production shifts.
- ▶ Applied 3D scanning workflows and reverse engineering techniques to reconstruct component geometry for legacy part re-engineering, supplier qualification, and dimensional benchmarking against Isuzu engineering specifications.
- ▶ Executed FEA structural simulation on tooling and fixture designs to validate load-bearing capacity and fatigue life prior to fabrication, reducing costly design rework and accelerating tooling approval cycles.
- ▶ Collaborated with CNC machining and fabrication teams to ensure manufacturability of engineered designs; provided technical guidance on machining parameters, material selection, and tolerance stack-up analysis.

- ▶ Coordinated new product development (NPD) activities with cross-functional teams including design, production, procurement, and external suppliers — managing engineering deliverables from concept release through mass production handover.
- ▶ Managed supplier coordination for tooling components and engineering parts; reviewed supplier drawings and first article inspection (FAI) reports to verify conformance to design intent and manufacturing specifications.

Research & Product Development Engineer — Supervisor

PT Kreasi Mandiri Wintor Indonesia (Astra Otoparts Group) | Feb 2020 – Jun 2021 Bogor, Indonesia

Agricultural Purpose Vehicle & Mini Field Tractor Manufacturer

- ▶ Led full-cycle product development for agricultural vehicles and field tractors — from concept ideation through SolidWorks CAD modeling, prototype fabrication, functional testing, and production release documentation.
- ▶ Designed, modeled, and iterated 3D CAD assemblies and detailed 2D manufacturing drawings with GD&T annotations using SolidWorks, ensuring dimensional accuracy aligned with supplier and fabrication tolerances.
- ▶ Executed tooling and fixture design to support manufacturing and quality inspection processes, reducing part inspection cycle time and improving measurement repeatability.
- ▶ Coordinated cross-functional development activities with operations, procurement, and supplier teams to validate part specifications and accelerate new component introduction (NCI) timelines.
- ▶ Leveraged reverse engineering techniques and 3D scanning data to reconstruct legacy part geometries, enabling accurate SolidWorks models for re-engineering and supplier sourcing.
- ▶ Applied FEA simulation (SolidWorks Simulation) to evaluate structural integrity of critical components, reducing physical prototype iterations and associated development costs.
- ▶ Developed and maintained structured engineering documentation including part drawing packages, design specifications, test reports, and product development records aligned with Astra quality standards.
- ▶ Supported manufacturing workflow improvement initiatives by analyzing production data, identifying bottlenecks, and implementing process optimization solutions to improve output efficiency.

Quality Control Engineer — Staff

PT Kreasi Mandiri Wintor Indonesia (Astra Otoparts Group) | Feb 2019 – Feb 2020 Bogor, Indonesia

Agricultural Purpose Vehicle & Mini Field Tractor Manufacturer

- ▶ Designed and fabricated custom inspection tooling and gauging fixtures to enable accurate, repeatable measurement of critical part features, directly supporting dimensional conformance to engineering drawings.
- ▶ Conducted systematic incoming quality inspection of vendor-supplied parts against 2D engineering drawings and GD&T specifications; documented and escalated non-conformances using structured quality records.
- ▶ Executed initial commissioning and qualification of new parts and components, developing inspection criteria and qualification checklists aligned with product design requirements.
- ▶ Maintained and controlled all quality documentation including inspection records, non-conformance reports (NCRs), and corrective action logs in compliance with Astra Otoparts quality management system.
- ▶ Performed root cause analysis on recurring dimensional and cosmetic defects; recommended design or process adjustments to engineering team to prevent recurrence.

Research & Development Engineer — Project

PT Velasto Indonesia Cikarang Plant (Astra Otoparts Group) | Jan 2018 – Dec 2018 Cikarang, Indonesia

Automotive Components Manufacturing — Astra Otoparts Group

- ▶ Developed detailed part designs from initial concept through production-ready engineering documentation — executing full design-to-manufacture workflow independently within project timelines.
- ▶ Conducted prototype builds, functional trials, and performance testing; compiled comprehensive test result reports to validate design feasibility and compliance with engineering specifications.
- ▶ Created production-ready 2D manufacturing drawings and 3D CAD models using SolidWorks, incorporating GD&T standards to ensure manufacturability and supplier compliance.
- ▶ Coordinated with third-party suppliers and internal departments (production, quality, procurement) to drive part qualification and mass production readiness, managing multiple concurrent development tracks.

Process Engineering & Product Development — Internship

PT Menara Terus Makmur (Astra Otoparts Group) | Mar 2015 – Dec 2015

Cikarang, Indonesia

- ▶ Analyzed and optimized product, fixture, and die designs to improve manufacturing process efficiency and reduce cycle time.
- ▶ Developed and implemented SOP improvements for machine operations, contributing to standardized work instruction documentation.
- ▶ Supported tool and part qualification reporting and product review processes, gaining foundational experience in manufacturing engineering workflows.

KEY ENGINEERING PROJECTS

Manufacturing Tooling & Fixture Development Program — Isuzu Full Model Range

PT Mesin Isuzu Indonesia | 2021 – Present

- ▶ Designed and validated multi-purpose manufacturing fixtures and inspection gauges in SolidWorks for Isuzu commercial vehicle production lines — covering Traga, N-Series, Giga model platforms.
- ▶ Ran FEA simulation on critical fixture structures to confirm load capacity and rigidity before fabrication, accelerating tooling approval and eliminating costly physical design rework cycles.
- ▶ Coordinated CNC machining and metal fabrication of tooling components with in-house and external workshops, providing technical drawing packages with full GD&T and machining callouts.

Kaizen & Line Balancing Improvement Initiative

PT Mesin Isuzu Indonesia | 2021 – Present

- ▶ Conducted systematic time study and motion analysis across multiple manufacturing workstations; identified process inefficiencies and re-balanced line operations to reduce bottlenecks and improve throughput.
- ▶ Developed standardized digital work instructions and SOPs within company workflow systems, reducing process variation and enabling consistent operator performance across shifts.

Agricultural Mini Tractor — Full Product Development Cycle

PT Kreasi Mandiri Wintor Indonesia | 2020 – 2021

- ▶ Owned end-to-end product development of mini agricultural tractor platform — SolidWorks modeling, GD&T drawings, prototype trials, tooling design, and production documentation.
- ▶ Applied FEA simulation to optimize chassis and attachment frame structural performance, reducing weight while maintaining safety factors.
- ▶ Reverse-engineered legacy competitor components using 3D scanning workflows and PolyWorks, recreating accurate CAD geometry for in-house re-engineering and localization.

Automotive Component Development — New Part Introduction

PT Velasto Indonesia | 2018

- ▶ Led NPI (New Part Introduction) project from concept design to mass production handover for automotive components, coordinating with 3rd-party suppliers and internal production teams.
- ▶ Produced full SolidWorks design packages with 2D drawings, material callouts, GD&T tolerancing, and assembly documentation within project deadlines.

TECHNICAL SKILLS

CAD & Design Software

- ▶ SolidWorks (Advanced — 3D Modeling, Assemblies, Drawings)
- ▶ AutoCAD (2D Drafting & Technical Drawing)
- ▶ Autodesk Fusion 360 (Design & Simulation)

Engineering Capabilities

- ▶ GD&T (ASME Y14.5 Standards)
- ▶ 2D Manufacturing Drawing Creation
- ▶ FEA Structural Simulation (SolidWorks Simulation)

- ▶ PTC Creo (Part & Assembly Modeling)
- ▶ PolyWorks (3D Scan Data Processing)

Manufacturing & Process

- ▶ Manufacturing Process Engineering
- ▶ Process Improvement & Optimization
- ▶ Time Study & Work Measurement
- ▶ Lean Manufacturing Principles
- ▶ CNC & Metal Fabrication Knowledge

Measurement & Quality

- ▶ CMM (Coordinate Measuring Machine)
- ▶ Dimensional Inspection Techniques
- ▶ Non-Conformance Reporting
- ▶ Root Cause Analysis (RCA)
- ▶ Incoming Quality Control (IQC)

- ▶ Tooling & Fixture Design
- ▶ Reverse Engineering & 3D Scanning

Documentation & Systems

- ▶ Technical Documentation & Work Instructions
- ▶ Engineering Drawing Packages
- ▶ Quality Management Systems (QMS)
- ▶ Product Development Lifecycle
- ▶ Microsoft Office Suite (Excel, Word, PowerPoint)

Remote Work Capabilities

- ▶ Independent Engineering Execution
- ▶ Ticket-Based Project Management
- ▶ Structured Digital Deliverable Output
- ▶ Cross-Functional Remote Collaboration
- ▶ Self-Directed Technical Workflows

EDUCATION

Diploma IV (D4) — Mechanical & Manufacturing Engineering

Swiss Polytechnic for Mechanic (POLMAN Bandung) | Sep 2016 – Sep 2017 Bandung, Indonesia
 Program Study: Design Engineering & Product Development

Diploma III (D3) — Design Engineering

Swiss Polytechnic for Mechanic (POLMAN Bandung) | Aug 2013 – Sep 2016 Bandung, Indonesia
 Program Study: Precision Tools Design

- ▶ Academic Scholarship Recipient — Bank Negara Indonesia (BNI), 2014–2015
- ▶ 100% Attendance Achievement Award throughout entire academic period

CERTIFICATIONS & TRAINING

- ▶ SolidWorks CAD Training — Advanced 3D Modeling & Assembly Design
- ▶ PolyWorks Metrology Software Training — 3D Scan Data Processing & Reverse Engineering
- ▶ Astra Otoparts Group Internal Engineering Development Program
- ▶ Quality Management System (QMS) Training — Incoming Inspection & Non-Conformance Control

ENGINEERING ACHIEVEMENTS

- ▶ 9+ Years of Progressive Manufacturing Engineering Experience across PT Mesin Isuzu Indonesia and Astra Otoparts Group — covering international automotive and industrial machinery sectors
- ▶ Currently leading a 4–6 person engineering team at Isuzu as Manufacturing Engineer Supervisor — overseeing tooling design, process engineering, NPD, and work instruction development for full Isuzu vehicle model range
- ▶ Successfully delivered manufacturing tooling & fixture design projects for Isuzu Traga, N-Series, Giga production lines — from SolidWorks CAD through FEA validation and CNC fabrication
- ▶ Drove Kaizen and line balancing improvement initiatives at Isuzu — applying time study and process analysis to reduce non-value-added activities and improve manufacturing cycle efficiency
- ▶ Applied reverse engineering & 3D scanning workflows to reconstruct legacy component CAD geometry, enabling in-house re-engineering and supplier qualification across multiple projects
- ▶ Executed end-to-end product development for agricultural vehicles at Astra Otoparts Group — from concept through prototype, FEA simulation, tooling, and mass production documentation

- ▶ Cross-functional project ownership spanning design, quality, procurement, production, and external supplier networks across concurrent NPI and NPD programs

LANGUAGES

- ▶ Bahasa Indonesia — Native / Full Professional Proficiency
- ▶ English — Professional Working Proficiency (Technical Documentation, Engineering Communication)

ADDITIONAL INFORMATION

Work Arrangement: Open to Full-Time Remote Positions | Available Immediately

Industries: Automotive | Agricultural Machinery | General Manufacturing | Industrial Equipment

Engineering Interests: Industry 4.0 | IoT | Additive Manufacturing | Digital Manufacturing | Car Body Structure Design

Professional Affiliation: KMPA Grune Techniker POLMAN Bandung — Head of ORAD Division (2013–2017)