Mark Attwood BSc (Hons) FIMI, AAE.

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# summary

Flexible and proactive Engineer with many year's experiences in various roles in Manufacturing, Process, Quality, Planning and Dimensional Engineering Management.

Ability to provide solutions to problems and successful delivery within New Product Introduction, drawing from experiences within JLR, Bentley, BAE Sytems and many other companies.

Proven adaptive approach to changes within the industry as the requirements are changing from traditional manufactured products to new greener technologies.

I have Amassed an array of tools and methodologies gained from working with many different manufacturing disciplines, Aerospace, Automotive and Defence, alongside the standard industry tools and methods.

As a Contract Engineer I am Looking for the next role to implement my experiences and contribute to the success of the Companies business objectives.

# Education

(2000 – 2003) BSc Hons. Industrial Design Engineering

Coventry University

(1996 – 1998) HNC, Engineering (Automotive)

Birmingham City University

(1994 – 1996) ONC, Engineering

Hall Green College

(1993 – 1994) BTEC 1st Certificate, Engineering Principles

Hall Green College

# Professional Membership

FIMI, Fellow of the Institute of the Motor Industry(Member No. 20190401257)

AAE, Advanced Automotive Engineer(Member No. 20190401257)

Institute of Engineering Technology (IET) Full MemberNo. 1100247089(Currently Re-joining and continuing with Chartered Application.

# Work experience

Sept 2024 – Still Present

**WAE / Fortesuce,** Banbury, Oxford

***Advanced Manufacturing Engineer*** *T264 Battery Project*

I am providing manufacturing engineering services to assist in the launch of the new Battery for the T264 Liebherr Mining Truck. Developing process flows for the new production line, generating a manufacturing bill of materials, and oversee the PFMEA process for one of the modules. I became part of the team during the prototype phase to help transition the project to series production.

Feb 2024 – Sept 2024

**Yasa Motors** (Subsidiary of Mercedes *Benz*), Yarnton, Oxford

***Plant Quality Consultant****, for Ferrari, Lamborghini and McLaren Projects.*

As a Plant Quality Consultant for Yasa Motors, I provide contract support by assisting in the implementation of new machines for testing and validation. I also serve as a signatory for the Manufacturing Engineering Commissioning of the machines during pre- and on-site installation. Additionally, I act as the main point of contact for customers such as Ferrari, Lamborghini, and McLaren, ensuring quality and compliance standards are met. Additional responsibilities involve analysing data, solving problems, creating reports, overseeing plant operations (Machine Validation), and managing projects related to testing and validating new products.

Oct 2023 – Feb 2024

**Polytec Car Styling,** Bridgnorth.

***New Product Introduction Engineer*** *(Quality) for Bentley Projects BY631 and BY63x*

As an experienced engineer, my role was to oversee the development of the new Bentley Bumper Systems and ensure they successfully progressed through the various stages of the development lifecycle. I was responsible for approving and submitting the Production Part Approval Process (PPAP) for these systems. Additionally, I was tasked with creating a detailed Process Flow of Materials for the final assembly of the Bentley Bumper Systems at a new facility. I provided support to our suppliers submitting PPAP’s to Polytec, guiding them through the requirements and ensuring that all documentation met the TS16949 and IATF standards. Specialize in developing and organizing PPAP documents for submission to Bentley, along with conducting Statistical and Capability Analysis to ensure customer approval.

Aug 2023 – October 2023

**JLR,** Whitley, Midlands, and various other sites.

***Prototype Build Operations Planner****, Engineering Delivery.*

*Programs, L460/L461 (Range Rover / Sport Electric Platform)*

Engaged to provide prototype vehicles using the electric platform for Range Rover and Range Rover Sport. Tasked with overseeing the Bill of Materials needed for constructing 149 prototype vehicles for the VB build phase. Responsible for ensuring all stakeholders meet the necessary milestones for testing, analysis, and meeting technical requirements. Assist Agile teams in ensuring timely availability of components for production assemblies. Serve as the primary engineering liaison for Agile delivery teams, offering technical guidance and promoting engineering best practices. Address project obstacles, such as delayed part deliveries, by collaborating with teams and suppliers to enhance delivery schedules. Create and deliver project proposals and estimations. Utilize data analysis to assess the progress of production releases and pinpoint potential areas for further examination. Facilitate regular meetings with program and department members to pinpoint opportunities for enhancing operations and decreasing lead times.

May 2023 – Aug 2023

**International Automotive Components,** Elmdon, Midlands.

***Dimensional Engineer, Plant Quality.***

*Programs, F6x, L551 24MY, L550 24MY, INEOS.*

Oversee the tooling and measurement needs for new Original Equipment Manufacturer (OEM) projects. Coordinate the integration of injection mold tooling provided by suppliers. Identify critical areas for enhancement in cases of non-compliant components. Responsible for meeting deadlines for the Part Submission Warrant (PSW) to the client by implementing action plans. Ensuring timely delivery of accurate dimensional metrology solutions. Involved in program drawing, GD&T planning, and tolerance analysis as a member of the Dimensional Engineering Team. In alignment with the comprehensive strategy, act as a representative for the Dimensional & Quality team in assessing the extended gauge needs and appropriate fixtures for T0 / T1 trials, taking into account specific product requirements. Offer technical assistance in all aspects of creating and managing a preferred list of IAC gauge suppliers, following a 'framework agreement'. Maintain clear communication with IAC Purchasing staff. In the phase of part design, play a key role in facilitating communication between IAC Product Design and the supplier to understand the impact of gauges, taking into account specific preferences of each manufacturing plant. Collaborate with the production team to validate that the gauge configurations align with the intended production workflow.

Mar 2023 – Many 2023

**JLR**, Halewood, Various Locations.

***Manufacturing Process Engineer****.* ***(BIW)***

*Programs L384, L481.*

The task involved overseeing the integration of the Body in White (Body) into the current production facilities at Halewood. This included coordinating suppliers, designing and organizing the production facilities, including robotic arrangements and spatial planning, while meeting cycle time requirements to ensure production targets were met. The role was diverse and called for skills such as Lean Manufacturing practices, Design Principles, Functional Safety considerations, and managing the flow of parts in the manufacturing process. The formulation of a manufacturing process strategy involves the planning, development, and execution of all written manufacturing processes. This includes the planning, development, and implementation of all manufacturing tooling. Supplier selection and management, as well as evaluating the process capability of all processes and equipment, including dimensional management applications, are crucial aspects of quality planning and analysis for production.

Sept 2018 – March 2023

**BAE Systems Submarines**, Barrow in Furness.

***Senior Dimensional Management Engineer*** *(Manufacturing Engineering),*

*Program, Dreadnought. SC Clearance.*

I was contracted as a Senior Manufacturing Engineer at BAE Systems, working on the construction of Dreadnought class submarines, specifically the Vanguard Replacement project. My role primarily focuses on the Mid-Section of the submarine, specifically the Missile Section. In this capacity, I am responsible for providing support to external companies involved in the manufacturing process, by assisting them with dimensional management, internal test planning, and tolerance analysis. The goal is to ensure that these companies meet the quality standards required by BAE Systems and deliver the necessary outputs.

While I am unable to disclose specific details about my work due to security reasons, I can mention that my responsibilities revolve around the Strategic Weapon System. In general, my tasks include implementing quality requirements from a manufacturing engineering, dimensional management, and quality perspective. This involves creating control and measurement plans, developing project schedules, and establishing quality checkpoints in accordance with the Bill of Materials (BOM) and process flow.

Feb 2017 – Sept 2018

**Emerald Automotive Design (LEVC)**, Coventry, Ansty.

***Senior Manufacturing Body Engineer****, Manufacturing Engineering (BIW)*

The role involves handling body troubleshooting, conducting statistical analysis, tolerance stack analysis, and making tooling modifications. The job necessitates excellent analytical abilities to make physical adjustments to tooling in order to maintain body geometric integrity within 85-90% tolerance of measured points. Additionally, I contributed to designing process flows for bonding lines to enhance efficiency and productivity during full-scale production. The position involved Advanced Manufacturing Engineering, in which quality requirements would be integrated into each phase of the production process. This would ensure that the body structure could be handed over to the manufacturing engineering and production teams with all quality and safety standards met, along with 90 days of post-delivery support. Practical experience at different stages of production would be necessary for making adjustments and modifications to the tools used.

Feb 2016 – Sept 2017

**Jaguar Land Rover**, Gaydon, Castle Bromwich.

***Dimensional Maturation & Body Integration Engineer******(DMBI, BIW)***

I was primarily responsible for ensuring the dimensional maturity of the body structure, from the initial design phase to the final launch of the vehicle. I supported the Dimensional Maturation and Build Integrity Project Engineer in achieving the Programme deliverables. During my tenure at Jaguar Land Rover, I served as a Prototype Build Body Engineer on a specialized team responsible for refining prototype stampings for the underbody structure of the Jaguar I-Pace. In this capacity, I collaborated with suppliers to ensure that their panels met Jaguar's exacting quality requirements, offering technical guidance to support their compliance with these standards. The position also required practical involvement in shimming and machining tooling to enhance the dimensional accuracy of the assembly. Prior to making any modifications to the tooling, an analysis of statistics and data was conducted.

Sept 2015 – Feb 2016

**TATA Technologies (Jaguar Land Rover)** Coventry, Gaydon.

***Optical Quality Lead*** *(Contracting)*

My role as the Optical Quality Lead Engineer was crucial in ensuring the development and design of vehicles of premium visual quality. As the lead member of a dedicated department, I oversaw the use of the absolute best processes and visualization techniques, starting from the engineering concept and continuing through virtual design and development.

One of my main responsibilities was to coordinate a team that would bring the Clay concept to reality. This involved working closely with engineers from various areas of the car to discuss how the concept could be effectively transferred into actual parts and eventually a fully functional vehicle. I ensured that all engineers were aligned with the project goals and that their commitments were met.

In addition to coordinating the team, I was also responsible for ensuring that all milestones were achieved and that the launch date of the vehicle was met. This involved closely monitoring the progress of the project, identifying any potential roadblocks, and taking necessary actions to keep the project on track. It was crucial for me to ensure that the quality deliverables were also achieved, as the vehicle would eventually be handed over to the current production facilities.

Overall, my role as the Optical Quality Lead Engineer involved coordinating a team, ensuring milestones were met, and guaranteeing that the vehicle's launch date was achieved while maintaining the highest quality standards.

Jun 2015 – Sept 2015

**Magna Interiors (Grupo Antolin)** Aston Birmingham.

***Automotive Quality Process Engineer*** *(Contracting)*

This contract was focused on providing assistance for the Project x260 (Jaguar XF) Interior Doors Quality Deliverables. Responsibilities included gathering and evaluating data from coworkers and suppliers 8D data for the purpose of problem resolution and meeting the Quality Plan Milestones during the Production Part Approval Process (PPAP). Develop statistical analysis techniques and methods for manipulating data to assess tolerance stack in injection mold tooling after shim adjustments and experimentation. Additionally, supervise three technicians in data collection, providing training on methods for ensuring data accuracy and consistency.

Dec 2014 – June 2015

**Bentley Motors** (Crewe).

***Analysis Engineer*** *Quality (Contracting)*

Contracted to support Quality Department to examine and address Quality Audit deficiencies on the Bentley Continental Interior, ensuring that Quality standards and results were achieved. This involved redesigning certain interior components like the rear armrest, where my responsibility was to provide guidance on the design of the new geometric specifications needed for optimal functionality. The Quality Audits were based on feedback from customers and internal assessments conducted within Bentley by the Quality Department.

Apr 2014 – Dec 2014

**United Technologies** (Banbury).

***Quality Engineer Aerospace*** *(Contracting)*

Responsible for handling customer returns that do not meet standards and overseeing the rework process until the products are ready for shipping. Participate in Material Review Board (MRB) meetings and provide final approval by generating and validating a Certificate of Conformance (C of C). Address customer issues through meetings and calls, conduct thorough Root Cause Analysis (8D) for non-conforming products, and implement containment measures when necessary. Also, work on developing suppliers in machining and measurement practices. Oversee the implementation of the FAIR process for facility relocation, collaborate with Production to develop Timing Plans, lead FAIR teams, and generate FAIRS using Visual FAIR as needed. Provide assistance with technical issues in manufacturing and Metrology.

Jul 2013 – Apr 2014

**Rolls Royce Control Systems** (Birmingham).

***Manufacturing Engineer*** *FAI Department (Contracting)*

In my capacity as a Quality Department employee, I am responsible for creating First Article Inspection Reports and Last Article Inspection Reports. These reports are vital in ensuring that Fuel System Components meet the Quality standards set by the Customer, especially when they are being manufactured at a different location. In the event of any deviations from the required specifications, my role involves collaborating with a team to determine if the components can be reworked, if a concession should be requested, or if they need to be discarded.

Jul 2012 – Jul 2013

**United Technologies** (Banbury).

***FAI Quality Engineer*** *(Contracting)*

Prepare AS9102 standard documentation for generating First Article Inspection Reports (FAIRs) for the Quality Department using IPI Visual FAIR software. Begin the process of Concession for any Non-Conformances identified during FAIR compilation. Supervise Supplier documentation and ensure FAIRs meet AS9100 Standards. Create internal FAIRs for the Composite Division and assist in troubleshooting efforts. Assist in implementing best practices in Dimensional Analysis.

Apr 2012 – Jul 2012

**Jaguar Land Rover (JLR)** (Gaydon).

***Dimensional Management Engineer******(BIW)***

Specializing in overseeing the dimensional growth and strategizing the introduction of new models for development, manufacturing, and plant metrology. Utilizing core tools such as Catia v5 and Teamcenter to create geometric plans for programming Coordinate Measurement Machines, enabling verification from individual panels to entire car body structures. Meeting timing milestones to release geometric data for development phases of the car up to Production Job 1 plus 90 Days.

Aug 2011 – Apr 2012

**United Technologies** (Wolverhampton).

***FAIR Surveyor, Manufacturing Engineering*** *(Contracting)*

In order to ensure quality management in the machine shop, I was responsible for compiling in-house First Article Inspection Reports (FAIRs) according to AS9102 standards. I also verified FAIRs from suppliers and had the authority to approve work that met quality standards as a Delegated Approver. In cases of non-conformances, I raised concessions with a justified explanation, which was reviewed by the Manufacturing Review Board (MRB) for approval at a higher level. I managed the lifecycle of components until their release and provided advice on re-work methods during manufacturing reviews. Supervise the processes of Design Engineering, Manufacturing Engineering, and the Machine Shop until the final approval is obtained for the release of components.

Feb 2011 – Aug 2011

**Eaton Aerospace** (Redditch).

***FAIR Surveyor Conveyancing****, Quality Engineering (Contracting)*

As a specialist First Article Inspector, my role involved creating First Article Inspection Reports (FAIR) for Bombardier. I oversaw the entire FAIR development process, collaborating with customers and suppliers to ensure timely completion. Additionally, I actively participated in problem-solving initiatives within both the Design and Manufacturing teams. The Quality Management System Jurisdiction was AS9100 / AS9102.

Dec 2010 – Feb 20011

**AF Aerospace, PCC Aerostructures** (Rugby).

***Quality Engineer*** *(Contracting)*

In my role within the Quality Department, I oversaw the Munitions section where I develop proactive strategies to prevent Non-Conforming Components from reaching the Inspection Department. I gather Statistical data to demonstrate Machine Capability and provide guidance to Machinists on measuring Critical elements of components, as well as documenting and verifying their data.

Jan 2010 – Dec 2010

**Bentley Cars** (Crewe).

***Dimensional Engineer****, Quality (Contracting)*

I conducted Dimensional Analysis as a part of the Manufacturing Feasibility Team, where I focused on problem-solving and Root Cause Analysis. I utilized Metrology Techniques, Laser Scanning, and Meisterbock Analysis (Nominal Bodies) - commonly known as the Mulsanne. My responsibilities included working on Door Systems and Exterior Brightware to ensure that design requirements were achieved through Feasibility Studies.

My extensive background with Faro Arms and scanners played a crucial role in this position for identifying Non-conformance problems.

Jun 2009 – Dec 2009

**Stadco, CADCAM** (Coventry).

***Coordinate Measurement Machine (CMM) Application Engineer NPI*** *(BIW), (Contracting)*

Utilize Coordinate Measurement Machines (CMM) software (ITP AXEL) to measure new stampings projects for Aston Martin and Bentley Body in White exterior body panels. Generate measurement programs and report results to Management. This process is integral to the Advanced Product Quality Planning (APQP) and Production Part Approval Process (PPAP) for ensuring quality submission. Tooling validation and installation assistance provided to external suppliers who are commissioning their tooling at Stadco.

Dec 2007 – Dec 2008

**Goodrich Aerospace, Able Engineering** (Birmingham).

***Quality, Inspection, Resident Engineer*** *(Contracting)*

I was stationed at a Goodrich Aerospace supplier for a year to ensure that inspections were carried out properly and that machined parts met the required quality standards before being sent to Goodrich. My responsibilities included recommending the best practices for Coordinate Measuring Machine (CMM) and 1st Principal Inspection methods, conducting Shop floor Patrols, and performing on-the-spot Audits to identify any deviations during the manufacturing process that could lead to additional costs if not addressed promptly. I also participated in Material Review Board (MRB) reviews to support decisions on how to handle nonconforming parts and to propose improvements to the machining process.

2005 – Dec 2007

**3-D Gage Limited.**

***Principle Engineer*** *(Director), Direct Consultancy*

I established 3-D Gage, a company dedicated to providing engineering consulting services to various industries such as Automotive, Aerospace, Design, and Power Generation. As part of our services, we utilized Metrology Equipment from FARO Technologies that I had acquired for the consultancy. The primary focus of the consultancy involved assisting with Quality Requirements, New Product Introduction, and Dimensional Management. Some of the companies I collaborated with during this time included Aston Martin, Bentley, Smiths Aerospace (GE Aviation), and MAGNA Automotive. My company operated on a global scale, and I was responsible for verifying and approving new tooling for BMW while working with a South Korean Company.

1986 – Dec 2005

**Land Rover** (Solihull).

***Various levels of Manufacturing Engineer******BIW*** *(Permanent Employment)*

Initially recruited as a welder responsible for manufacturing the Chassis for the Defender 90 and 110, I transitioned to the Prototype division where I welded prototype show vehicles. I was also part of the team involved in developing the concept from clay models to a physical body structure. During this period, Land Rover provided me with the opportunity to pursue an engineering degree through a Qualification Road Path program. Subsequently, I held various engineering roles focused on body engineering, including a stint in Germany at the BMW Dingolfing Plant during Land Rover's ownership by BMW. My final position was as a Project Engineer within the Design Department, where I served as a liaison between design (Clay modelling) and production intent.

1984 - 1986

**A.L. Greaves Sheetmetal & Fabrication** (Birmingham).

***Trainee Welder Fabricator*** *(Permanent Employment)*

Recruited as a trainee Welder Fabricator, I gained experience in interpreting engineering drawings, measuring, and preparing fixtures for welding. I also learned various 1st principal measurement techniques. This initial work experience involved working with Sheetmetal, Fabrication, and Welding of pressure vessels. I also worked on fabricating Ducting during this time. Working in a small company required me to be versatile in turning, machining, welding, cutting, and bending processes.

End of Work Experience.

**Professional Qualifications / CPD / Certifications**

*(2022) Course Supplier, AIGPE*

Certified FMEA Specialist (Exam Route), Certification No. ZSSFM121143729

Certified Lean Six Sigma (Exam Route), Certification No. ZSSWB121149183

*(2022) Course Supplier, Coventry University*

Metrology Masterclass

*(2020) Course Supplier, KROHNE TUV NORD*

Hazard & Risk Assessment Functional Safety (SIL)

*(2020) Course Supplier, National Physics Lab (NPL)*

CPD Individual Courses

*(2019 –20) Course Supplier, TÜV Rheinland UK,*

*Safety and Reliability Engineering Management*

***Post Graduate Diploma (Level 7)***

See end of C.V. for further detail of subjects studied

*(2019) Course Supplier, NCFE (Northern Council for Further Education)*

Lean Organization Management Techniques

*(2009) Course Supplier, Birmingham City University*

Project Management (Prince2)

# References

Can be updated as required with latest references.

# CPD Continued

***Course Supplier, KROHNE TUV NORD***

* Hazard and Risk Assessment, Functional Safety (SIL)
* Historic Accidents
* Applicable Standards
* What is Risk
* Risk Identification
* Risk Analysis
* How is risk quantitatively determined (Risk Graph))

***Course Supplier, Risktec TUV, Safety and Reliability Engineering***

Post Graduate Diploma (Level 7)

* Bowtie Risk Management i2
* Functional Safety of Safety-Related Systems i2
* Hazard Identification i2
* HAZOP Study i2
* Physical Effects Modelling i2
* Principles of Risk Management i2
* Rail Industry Hazards and Risks i1
* Rail Safety Analysis i1
* Risk Analysis i2
* Human Factors in Design & Operations

*Course Supplier,* ***National Physics Lab (NPL)***

* Introduction to Measurement Uncertainty
* Dimensional Measurement User e-Learning Course
* Introduction to Geometrical Tolerancing
* Geometrical Product Specification Explained (Short Course)
* Portable 3D Metrology

***Course Supplier, AIGPE Certifications***

(Currently undertaking Certifications in Lean Six Sigma)

Lean Six Sigma White Belt, Passed

Lean Six Sigma Yellow Belt, WIP

Lean Six Sigma Green Belt, WIP

Lean Six sigma Black Belt Phase 1,2 and 3

Currently studying the Levels 1 – 5 in the Certifications leading to Quality Champion AIGPE

End of C.V.