Supplier Quality System Requirements Manual

Quality Policy

"AxleTech is committed to meeting our customer's requirements and expectations by continually improving the Quality, Delivery, Technology, and Service of our products and processes."

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1.0 INTRODUCTION

1.1 SCOPE

This Manual defines the minimum mandatory requirements that are expected from an AxleTech "approved" supplier regardless of global location.

1.2 PURPOSE

The purpose of this manual is to communicate the requirements for the quality management systems to any company that supplies goods or services to AxleTech.
AxleTech requires suppliers to:

1. Establish and maintain ISO processes or equivalent.
2. Control processes, maintain process capability, maintain quality systems, and control waste.
3. Show evidence of use of APQP, PPAP, FMEA, and all of the disciplines included in these processes both at PPAP and during serial production.
4. Stay up to date with supplier requirements of this website and AxleTech's Plexus Database.
5. Note that specific additional requirements may exist for each AxleTech plant.

1.3 PLEX ONLINE

AxleTech utilizes an online service named PLEX ONLINE to manage Corrective Actions, PPAP records, and to provide access to Controlled documents. This site can be accessed directly at www.plexus-online.com or through the AxleTech website by going to Company→Supplier page and clicking on the Plexus Online link.

Each supplier will be assigned access based on their need but only one individual will be set up as the key contact. That individual will receive all automatic emails from the system to inform them of Defective Material notices (DMN), Corrective Action requests, PPAP requirements and system changes. If for any reason the key contact needs to be changed the Supplier is required to contact the AxleTech Quality Department and provide the updated contact information.

In the system there is a section that is identified as "Document Control System" which contains all of AxleTech's specifications as well as other Controlled documents. This allows the Supplier access to the latest revision of the specification and allows automatic notification when a specification is updated. The information on this site is to be considered proprietary which is covered under the Nondisclosure agreement between the Supplier and AxleTech.

2.0 SUPPLIER REQUIREMENTS

2.1 SUPPLIER APPROVAL PROCESS

Current and potential suppliers to AxleTech must operate within a comprehensive quality system. Suppliers must provide proof of compliance with or written confirmation of third party certification to ISO 9000-2015 or TS 16949, or provide action plan dates for achieving third party certification to one of these standards. Moreover, AxleTech recommends that

suppliers are certified to ISO14001 and OHSAS 18001. These requirements may be waived at the discretion of AxleTech Purchasing and Quality Assurance based on a visit to the supplier or information presented by the supplier during a pre-award meeting.

At the discretion of AxleTech, a review of supplier's manufacturing process may be conducted at the supplier's facility. This review will audit processes and determine supplier feasibility.

2.2 PRE-AWARD MEETING

Suppliers offering new products, prototypes or services to AxleTech shall be required, prior to purchase order issuance, to meet for a Pre-Award Meeting and/or a Technical Review. During these meetings, technical, quality, PPAP, manufacturing, engineering, purchasing, metallurgical, delivery, and business issues will be addressed to give the suppliers an understanding of AxleTech's requirements.
A Pre-Award check sheet will be compiled by the buyer and will serve as a guideline for further steps in the process. The Check sheet will also be put into Plex by the buyer as part of the sPPAP record.

2.3 CONTRACT REVIEW

The supplier shall verify all Purchase Orders (P.O.) issued by AT upon receipt. Any discrepancies in price, quantity, specifications, packaging, or delivery requirements must be communicated to and resolved with AT Purchasing before taking action on the purchase order.

The supplier accepts responsibility for compliance with the current AT Order terms and conditions by accepting **and/or** acting upon the P.O. The current P.O. terms and conditions are specified on the back of the AT purchase order.

2.4 PRODUCTION PART APPROVAL PROCESS (PPAP)

PPAP is a quality tool for planning, prototype, pilot, pre-launch, and production. All suppliers are required to use the Supplier Production Part Approval Process (sPPAP) tool in the Plexus on line system (Standard PPAP Manuals are available through AIAG). The sPPAP system is set up to allow AxleTech Purchasing to notify the supplier of the requirements and to allow AxleTech Quality to post the requirements, review, and approve or reject each document submitted. All required documents must be uploaded by the supplier into the sPPAP system. Once a PPAP is approved in the sPPAP system it then becomes a permanent record of the approval and cannot be modified.

Suppliers are required to conform to released (non-preliminary) AxleTech print specifications and dimensional requirements at all times. Any shipment of production or prototype product without first obtaining interim or full approval on a part submission warrant (PSW), and (if needed) an approved engineering deviation or approved Drawing Change Request (DCR), shall be considered defective product.

As a default, Suppliers are required to submit a Level 3 PPAP for:
1) Any new product that is being released for production
2) Any part where a supplier has made a *pre-approved* change in the process, product, location of manufacture or sub-supplier.

3) Or when requested by AxleTech Purchasing or Quality Assurance.

Deviation from the Level 3 PPAP requirement can be determined during the Pre-Award meeting with the joint consensus of AT Purchasing and Quality. This deviation will be reflected in the requirements posted in the sPPAP system.

For standard catalogue items a Certificate of Conformance may be deemed acceptable. AxleTech Quality will make that determination. See appendix D for a template.

AxleTech will periodically hold PPAP training sessions with selected suppliers to assist them in broadening their knowledge in the tools used in the PPAP process. This training material is available in the Plex-on-line system for review. Suppliers are invited to request inclusion in the training if they wish to expand their knowledge of the PPAP process.

2.5 PROCESS CAPABILITY REQUIREMENTS

As part of the PPAP requirements all suppliers are expected to provide documentation that all Major Characteristics or Safety Related Characteristics are capable and in control or provide evidence on their Control Plan that these items will be checked 100%. Ongoing process monitoring and control of these items is mandatory and data should be available for review at any time. Statistical control levels will be finalized at the Pre-Award meeting but as a standard it is expected that the supplier meet a Cpk of 1.33 on all Major and Safety Characteristics during serial production. See Appendix B for definitions. A statistically significant sample size must be used to determine Cpk values (30 piece minimum is recommended). If the initial orders do not allow for this sample size it is required that the supplier will check all product 100% until enough data is available for evaluation.

2.6 ENGINEERING PROTOTYPE SAMPLE SUBMISSION

Submission of prototype parts may be requested with documentation of specification conformance that meets AxleTech's Prototype Approval Process. At a minimum, a PSW, dimensional report, ballooned drawing, and material certification is required for submission. Full requirements will be discussed during the Prototype Review meeting and expectations will be outlined on the Purchase Order.

2.7 MANUFACTURING PROCESS REVIEW

AxleTech reserves the right to review the supplier's manufacturing process at their facility. A reasonable lead time will be established. Validation of PPAP submission, Run at Rate, Corrective Action responses and Quality Certification Scheduling are all possible reasons for scheduled visits. If a supplier has consistently exhibited poor Quality and/or Delivery performance, Purchasing and Supplier Quality will contact the supplier and schedule regular visits to ensure improvement in performance (see letter in Appendix C).

In addition a supplier may be invited to be part of the Quality Systems Basic (QSB) Assessment process. This process involves an AxleTech Quality representative visiting the supplier's site and reviewing their Quality Management System and Production facilities to determine possible areas for Continuous Improvement. Action plans and follow up meetings will be established to track progress and Supplier Scorecards will be evaluated to determine the impact of the actions taken.

2.8 APPROVED CHANGES

AxleTech must be notified in advance if a supplier plans to change an approved material, process, or location of Manufacture or sub-supplier. Written approval from AxleTech (either through a drawing change request for permanent changes or a deviation request form for temporary changes) must be received prior to change implementation, and before PPAP submission, if applicable. No deviations/concessions shall be permitted without the appropriate validation and customer approvals. See 3.6 and 3.7 for more information.

2.9 VERIFICATION REVIEWS OF PURCHASED PRODUCT

AxleTech and its customers have the right to verify at the supplier's premises that the product and subcontract product conform to specific requirements. The AxleTech representative shall specify both the arrangements and method of performing the review.

2.10 SUB-SUPPLIER MANAGEMENT

AxleTech's direct suppliers are responsible for the Quality and Delivery of all of their sub-suppliers. The supplier is expected to proactively manage their supply base in a manner that ensures that AxleTech Quality and Delivery expectations are always met.

This includes AxleTech directed sub-suppliers. The supplier is expected to request, obtain, approve, maintain a level 3 PPAP from all suppliers, and be prepared to potentially supply documentation, unless approved in writing by AxleTech. AxleTech reserves the right to validate the sub-supplier PPAP but this in no way transfers the responsibility of managing sub-suppliers from the Supplier.

2.11 ANNUAL LAYOUT

A full layout of each part number currently in production may be required annually unless previously agreed to in writing by AxleTech Purchasing and Plant Quality. Documentation must be sent to the AxleTech plant where the product is used. It is assumed that first-piece inspections, process performance records, and process capability data are always available. These records may be requested in place of full layouts. In addition all applicable material certifications must be submitted annually at a minimum to ensure that AxleTech has the latest records of certification on file.

2.12 WARRANTY

AxleTech may identify, review, and document other specific warranty requirements at a Pre-Award Meeting that are not specified in the Purchase Order.

3.0 MANUFACTURING CONTROL

3.1 SUPPLIER TOOLING

AxleTech property shall be permanently marked showing AxleTech as the owner and it must be visually apparent on all tooling. For AxleTech tooling at supplier location, the supplier, as holder of the tooling, is responsible for establishing a preventive maintenance procedure, maintaining the tooling, and ensuring that all applicable equipment is calibrated as needed. Records should be available for review at any time.

The supplier is expected to notify AxleTech Purchasing prior to the tooling reaching the end of its useful life. Notification should be made with enough lead time to allow for tooling to be repaired or replaced without interruption of supply or the need for mitigation of Quality problems. At a minimum an evaluation should be made at the completion of a purchase order to ensure that all concerned have an opportunity to plan for any repair or maintenance prior to the next run.

3.2 NON-CONFORMANCE REPORTS (PLEXUS ON-LINE)

Any supplier who receives a Defective Material Notification (DMN) must utilize Plexus-On-line for their response to any and all DMN's. A Defective Material Notification (DMN) is issued for defective parts or conditions utilizing an automatic e-mail sent to the main Supplier contact.

All suppliers are required to utilize this internet-based quality system to communicate with AxleTech on the containment and resolution of DMN's. This system is located at the internet address www.plexus-online.com. An initial acknowledgement reply, including a containment plan and Short Term Corrective Action Plan indicating immediate action to correct the inventory and the next delivery, must be returned within one business day of notification. If the form indicates that a Corrective action is required, a Final Corrective Action Plan is due within fourteen days of receipt. At a minimum this Final Corrective Action Plan should include the Root Cause Analysis and a Long Term Corrective Action. The supplier may provide his action plan on his own 8D template under the condition that they upload it as an attachment to the DMN.

3.3 QUALITY / DELIVERY PERFORMANCE MEETINGS

Suppliers who do not meet AxleTech's expectations and requirements will be required to attend a Quality/Delivery Performance Meeting. Reasons for meeting request may be, but is not limited to:

1. Poor Delivery performance.
2. Excessive DMN's and poor response time.
3. Poor PPAP performance.
4. Scrap issues.

If, at the end of the Quality/Delivery Performance Meeting, the supplier has been deemed unacceptable, the supplier shall be prohibited from bidding on new business and/or has their current business **may be** resourced.

3.4 PACKAGING/ IDENTIFICATION/ TRACEABILITY

Every shipment (box, pallet, or rack) to AxleTech shall be identified as instructed in the Pre-Award Meeting or by the Buyer. Part number, supplier name, and address shall permit traceability back to the supplier records. At a minimum, safety related parts shall be identified to all legal and/or AxleTech requirements. In addition all parts will be packaged in a manner that protects them from damage and deterioration. On parts that are susceptible to corrosion the supplier is expected to take measures that ensure preservation for 6 months from the time of shipment. Any changes to packaging must be approved by AxleTech in writing prior to implementation. Various shipping terms do not absolve the supplier from proper packaging.

Packing Lists and Shipping Labels
Packing lists must contain: AT's part number, manufacturer's part number, all lot numbers in the shipment with quantities per lot, P.O. number, number of cartons and quantity per carton and total quantity shipped.

Shipping labels shall be formatted and located according to AxleTech labeling requirements. Labels must contain AT's part number, part revision level, part description, supplier number, supplier location, manufacture date, number and quantities of lots, total quantity shipped, and P.O. number.

The supplier is responsible for maintaining lot traceability while the product is at the supplier's location. Lots are not to be mixed together.

Bar-Code Label Instruction
AT will accept bar code labeling in accordance with AIAG (Automotive Industry Action Group) shipping/Parts Identification Label Standard AIAG-B-3.

3.5 QUALITY PERFORMANCE EXPECTATIONS
As part of the Supplier Performance tracking system, AxleTech has implemented Supplier Scorecards for key suppliers. These scorecards will be compiled quarterly and sent out to the supplier to provide feedback on their individual performance.

All AxleTech suppliers are expected to meet or exceed all dimensional, packaging, identification, and material specifications as listed on the approved part print. Any cost incurred to correct deficiencies will be the responsibility of the supplier.

NOTE: Any costs associated with nonconforming parts, such as shipping, reworking, inspection, and replacement shall be charged to the supplier at US $75 / EUR 75 per hour.

3.6 MATERIAL CONFORMANCE
Material Certifications - The supplier is responsible for ensuring that production materials supplied to AT is in compliance with all material specifications as shown on the drawing, associated specification, or purchase order.

Material Certifications must have lot test data attached specifically showing the specification requirements and results of the tested lots. Certifications must include the manufacturer's name and address, part number, lot number, manufacture date, results measured, signature and title of individual approving certificate, and order number of the product that it is being certified to. Copies of lab accreditation are required if materials are being tested and certified by commercial laboratories.

Suppliers must maintain material certifications records for all products produced.

3.7 Regulatory Conformity (EPA/DOT/Safety/Reach)
All supplied products or materials used in the supplier's process must comply with current governmental safety and environmental standards and laws regarding restricted, toxic, and hazardous materials.

Hazardous materials must be marked clearly as such, and packaged appropriately.

Material Safety Data Sheets (MSDS) must be provided for new items and /or products utilized to provide corrosion protection prior to delivery of samples or production materials. An updated version of the MSDS will be forwarded to AT whenever it is revised. If an MSDS sheet cannot be submitted, an Engineering Technical Data sheet must be submitted. The supplier shall have a form of documented compliance for this type of material on site, and make it available upon request.

Restricted Materials
Suppliers of components and materials are responsible for ensuring that their supplied products do not conflict with AT's (New) restricted materials list. If an issue exists, supplier must contact AT Purchasing Department for approval prior to manufacture of parts.

For the European market, chemical substances integrated into products shall be made only with substances pre-registered and authorized by REACH regulations. This requirement is also applicable for chemical substances and preparations used in manufacturing process.

The list of pre-registered chemical substances is available on the following website:
https://echa.europa.eu/information-on-chemicals/pre-registered-substances

The Supplier shall inform the Buyer if a substance that is part of the candidate list is present in the product above a concentration of 0.1% weight by weight.
The list of candidate substances is available on the following website:
https://echa.europa.eu/candidate-list-table

The Supplier shall evaluate the impact of REACH regulations on design and/or manufacturing of the product and implement actions in order to ensure compliance with contractual obligations about product quality and delivery.
Note 1: The substances of a chemical are listed in Section 2 of Material Safety Data Sheet (MSDS) of the relevant product.
Note 2: Information and guidelines about REACH regulations are available on the following website: http://guidance.echa.europa.eu

Life Cycle
The supplier will take into consideration the potential environmental impact of their products and try to minimize it. AxleTech must be informed of, and supplied with documentation of, all potential environmental impacts of the manufacturing of the product, including the expectations and regulations for end of life.

3.8 DEVIATIONS
It is AxleTech's policy to reject material that does not meet requirements of the drawings and/or specifications. In the event a deviation is desired, it must be submitted to the AxleTech Quality Department to be reviewed and possibly approved by the Engineering and Quality Managers before the parts have shipped from the supplier properly identified per the requirements on the returned, approved deviation form. The deviation must be on an official AxleTech Deviation Form with all information filled in (quantity, date, reason, signature, and

Corrective Action plan). A copy of this form is available on the PLEX ONLINE system under "Document Control System" in the PPAP Template file.

3.9 DELIVERY PERFORMANCE EXPECTATIONS

All AxleTech suppliers are expected to maintain 100% **on time** delivery performance. Any cost incurred as a result of delivery problems, including premium freight, will be the responsibility of the supplier.

3.10 BUSINESS CONTINUITY

By either submitting its proposal/quotation or accepting an AT order, Seller represents and warrants that it has a Business Continuity Disaster Recovery Plan (BCDR) in place to protect itself and AT in the event of any business disruptions. Seller shall use commercially reasonable efforts to develop and maintain this plan regarding contingency management to alleviate the effects of any events impacting business that may have a material and adverse impact on Seller's ability to perform its obligations.

The BCDR shall contain, at a minimum, provisions for a risk assessment and business impact analysis, a prevention/mitigation plan, and a resumption of services plan, including a recovery/restoration plan. The preceding will cover, but not be limited to, services, documentation, storage, and protection (including, but not limited, to storage of deliverable technical information, Specifications, design documents, and documentation related to tools, fixtures, and process), information systems security and redundancy, and will demonstrate the Seller's ability to rapidly recover the loss of capability to deliver services and Product.

Seller shall apply similar risk management requirements to its own supply chain relative to AT's orders and shall immediately notify AT if a risk seems likely to materialize that could impact Seller's delivery or performance for AT.

4.0 REVISION HISTORY

Revision	Date	Comment
A	3 January, 2003	Created
B	9 April, 2003	Modified assessed charges.
C	1 January, 2004	Modified changes per Oshkosh and STE Quality Managers
D	17 June, 2004	Modified changes per Oshkosh and STE Quality Managers
E	28 March, 2005	Modified changes per review on 3/18/05
F	25 June, 2005	Modified changes per review on 6/18/05
G	10 November, 2005	Modified changes per review on 11/10/05
H	5 September, 2006	Added waiver possibility to supplier approval process.

I	20 January, 2010	Added items listed in Bold Type
J	29 September 2011	Updated items listed in Bold Type. Charges changed to reflect current labor costs.
K	September 2013	Added items listed in Bold Type and added section 1.3 PLEX ONLINE Section 3.9 Business Continuity and Appendix D, and E
L	-	Revised Logo and correct errors in Appendix C
M	May 2017	Updated Quality Policy and removed terms and conditions (already on P.O.)
N	April 11, 2018	Updated Logo, Quality Policy, formatting, and content from STE.

5.0 Appendix

Appendix A - Definitions

Definitions for the abbreviations used for the quality tools required of suppliers to AxleTech:

- Quality System Requirements (ISO, QS, etc.)
- Quality System Assessment (QSA)
- Production Part Approval Process (PPAP)
- Advanced Product Quality Planning and Control Plan (APQP)
- Potential Failure Modes and Effects Analysis (FMEA)
- Measurement Systems Analysis (MSA)
- Statistical Process Control (SPC)

Appendix B – Control Characteristics

A Control Characteristic is either a Safety Related Characteristic (SRC) of a Safety Related Component or a Major Characteristic of any component that requires particular attention on the part of manufacturing to ensure conformance to specification. Control Characteristics are designated by AxleTech design control authority through:

- The application of special symbols on engineering drawings
- Special symbols on material and process specifications
- Appearance on a Quality Control Characteristics (QCC) list
- Characteristics deemed major due to the supplier's manufacturing process

It is of critical importance that all identified Control Characteristics be addressed in the supplier's quality planning process and documentation (i.e. control plans, operator instructions, and FMEA's), with the supplier specifying for each Control Characteristic the control method, inspection method, testing frequency, and reaction plan for incoming, layout,

in-process, and final inspection operations on the Control Plan. Suppliers may have specific Control Characteristics required to maintain robust process control.

Definitions of control characteristics and their AxleTech symbols are as follows:

Safety Related Characteristics
A dimensional, material, process, or performance specification or standard which, if violated, may cause a failure or malfunction resulting in:
• An unreasonable risk of personal injury or death, or
• A condition of non-compliance with any federal, state or local law, rule, or regulation

Safety Related Characteristics are to be reported 100% on every production shipment until Process Capability studies are conducted and approved by AxleTech.

Safety Related Component
Any part, component, assembly or system that contains one or more Safety Related Characteristics.

Major Characteristics
A dimensional, material, process, or performance specification or standard which, if violated, may cause a failure or malfunction resulting in:
• A major repair
• An inability to manufacture or assemble the product properly
• A significant customer complaint

Appendix C: Sample Letter for Non-Compliant Suppliers

To: AxleTech Suppliers

From: Quality Dept.

Date: 03/26/18

Subject: E-mail Notification for Unresponsive (DMN-Step Process)

DMN-

We regret to inform you that the following DMN/s are under review due to your lack of response. This is your e-mail notification that you have been placed in our unresponsive 4 Step process. This notification is being sent to your Plexus contact and associated senior management. We have quarantined these items in our Quality hold area and are urgently waiting for an RGA.

Our policy requires that within 24 hours you ensure that the following actions have occured:

1 Validate your in-house inventory.

2 Identify any suspect product in transit.

3 Issue a RGA for the disposition of the parts on Quality hold.

4 Step Escalation Notifications process

1) DMN not responded to within 7 days, Plexus contact, QA Manager
2) DMN not responded to in 14 days, Plexus contact, QA Manager, Plant Manager
3) DMN not responded to in 21 days, Parts scraped, debited to your account
   Prohibited from quoting new business.
4) DMN not responded to in 28 days Resourcing activities begin at AxleTech.

All suppliers are expected to respond to any and all DMN's issued to them within the time period allowed. If you have any questions please contact AxleTech Plant Supplier Quality.

Appendix D: Certificate of Conformance Template

CERTIFICATION OF CONFORMANCE

Purchase Order #: **Date:**
Item Description:
Part Number:
Revision Level:
Quantity:

WE HEREBY CERTIFY THAT ALL PARTS AND/OR MATERIAL INCLUDED IN THIS SHIPMENT HAVE BEEN MANUFACTURED, PROCESSED, INSPECTED, TESTED AND FOUND TO BE IN COMPLIANCE WITH ALL APPLICABLE DIMENSIONAL AND METALLURGICAL REQUIREMENTS OF THE PURCHASE ORDER, DRAWING(S), AND SPECIFICATION(S).

Authorized Signature

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Name:
Title: