

MPT SUPPLIER QUALITY MANUAL

Guidelines for Supply to

**MAHLE Powertrain Limited
Engineering Services**

Version 8.0

1 Purpose

This document has been developed to assist our suppliers in the supply of prototype components to MAHLE Powertrain Limited (hereafter MPT) Engineering Services division.

We need excellent suppliers to ensure that we meet the requirements of our customers in all aspects.

2 Company Overview

MAHLE is a leading international development partner and supplier to the automotive industry. With its technologically innovative products for combustion engines and their peripherals as well as solutions for electric vehicles, the group addresses all the crucial issues related to the powertrain and air conditioning technology – from engine systems and components to filtration to thermal management. The MAHLE Group ranks among the top three systems suppliers worldwide for mobile applications in these sectors. MAHLE products are fitted in at least every second vehicle worldwide.

MAHLE components and systems are also used off the road – in stationary applications, for mobile machinery, rail transport, as well as aerospace and marine applications. The Aftermarket business unit also serves the independent parts market with MAHLE products in OE quality.

In 2016, the MAHLE Group generated sales of approximately EUR 12.3 billion with around 76,600 employees and is represented in 34 countries with over 170 production locations. At 15 major development locations in Germany, Great Britain, Luxembourg, Slovenia, USA, Brazil, Japan, China, and India, about 6,000 development engineers and technicians are working on innovative solutions for future mobility.

MAHLE Powertrain specialises in the design and development of advanced internal combustion engines, hybrid and electric powertrain systems and transmissions. MAHLE Powertrain is engaged in extensive research, focussed on the application and optimisation of new engine, mobility and driveline technologies into cost-effective, production feasible solutions for enhanced efficiency, improved fuel economy and lower emissions.

In addition to the head office in Northampton, UK, MAHLE Powertrain also operates from technical centres in Stuttgart and Munich, Germany; Plymouth, MI, USA; Shanghai, China and São Paulo, Brazil. The UK also includes series production manufacturing sites in Wellingborough.

MAHLE Powertrain has around 400 employees based in the UK and 600 in total worldwide.

3 Request and Preparation of Quotations

MPT identifies potential suppliers based upon various criteria including, but not limited to, quality accreditations, capability, capacity, competence, customer base, technical ability, financial stability, competitiveness, strategic fit, market position and environmental awareness.

MPT submits a Request for Quotation (RFQ) to potential suppliers, who are expected to respond with a Response to Quotation (RTQ); Note that MPT is not bound to accept the lowest quote and any supplier costs for the quotation process, will not be defrayed.

Suppliers are expected to carry out a feasibility study and/or a contract review prior to quotation, and identify any issues in meeting contract or drawing requirements, specifications or timing. Evidence of this may be requested by MPT.

4 Supplier Qualification Process

4.1 Vendor Data Sheet (VDS)

The Vendor Data Sheet contains the supplying organisation's financial details, identifies key contacts, organisational structure, and quality accreditations held.

4.1.1 Environmental

MPT is an ISO14001 accredited company, and part of the corporate strategy is to minimise the environmental footprint of global operations.

MPT is further committed to encouraging suppliers to seek accreditation to the ISO14001 standard, or alternatively, develop their own Environmental Management System (EMS) to promote the diligent management of the environmental impact of the suppliers' business operations.

4.1.2 REACH

Where applicable, MPT suppliers must comply with the obligations established by the latest regulations concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and any amendments thereof.

4.1.3 Modern Slavery Act (MSA) 2015

Where applicable, MPT suppliers must comply with all legal obligations outlined in the Modern Slavery Act 2015. Suppliers must provide documentary evidence as defined in the legal framework therein to ensure compliance with all slavery and servitude, forced or compulsory labour and human trafficking obligations.

4.2 Confidentiality

The supplier must keep all information, secure and confidential, that MPT has, or may divulge to the supplier relating to its products or business. The supplier must not disclose any of the information to any third party without the prior written consent from MPT.

Where necessary a Non_Disclosure Agreement will be made between supplier and MPT.

4.3 Design Responsibility Agreement

MPT and the supplier may agree technical and design responsibilities at the start of the project. This agreement may take the form of a RASIC to define clearly the team, work scope and work split.

4.4 Initial Evaluation Audit

An Initial Evaluation Audit may be conducted to assess potential new or unknown suppliers, new locations and technologies, and where appropriate, the organisation's development and process potential.

The assessment evaluates the competence of the supplier and their staff, in the manufacture of similar products, its supply chain management and its product and process development capabilities.

A positive outcome does not necessarily end with a contract with MPT. However, a negative Initial Evaluation Audit could exclude the chance for nomination.

4.4.1 Process

The Initial Audit will be carried out by an auditor and may involve specialists from other functions (e.g. Engineering, Purchasing, Design etc.).MPT retains the right to commission MAHLE Group auditors or qualified external auditors.

4.4.1.1 Requirements

A standard questionnaire will be used to ensure the systematic and repeatable evaluation of suppliers. Each question in the Initial Evaluation Audit is assessed in terms of compliance with requirements and the risk involved.

4.4.1.2 Audit Result and Improvement Program

The report for the Initial Evaluation Audit will be issued to the supplier where possible, on the day of the visit. Where a supplier achieves an acceptable audit score, but there are risks identified from the audit, an Improvement Programme must be provided to the supplier. The supplier must submit to MPT Supplier Quality Assurance (SQA) department the Improvement Programme with a timing plan and follow up actions. In the case of a contract being awarded, the Improvement Programme must be implemented within the agreed deadlines.

The effectiveness of the measures must be demonstrated by the supplier without being requested, through a self-audit to the agreed deadlines and the report submitted to MPT. MPT may also conduct a re-audit if required.

5 Approvals

5.1 Products

5.1.1 Prototype Parts Document Requirements (ISIR)

Unless otherwise agreed, each product batch delivery requires an Initial Sample Inspection Report (ISIR) for one component. In the interest of the environment, these should to be sent in advance via email to MPT SQA, and prior to despatch. Unauthorised delivery ahead of the ISIR Documents, may result in a rejection.

The ISIR Pack must include:

- **Full dimensional report**, detailing and recording the actual results obtained against each drawing characteristic, including drawing notes.
- **Material confirmation**, this may include statements of conformity, certificates of conformity, mill certification or spectrograph results
- **Surface treatment certificates** (where applicable) e.g. heat treatment, plating, etc.
- **Performance test certificates** (where applicable) e.g. pressure test, balancing etc.

Accompanying the ISIR, must be a fully marked up and numbered drawing, cross-referenced to the characteristics detailed within the dimensional report.

Identification (e.g. by label) of the actual component inspected is mandatory, unless batch size is one.

Any characteristic found to be outside of specification must be denoted as such on the ISIR, and contact made with MPT SQA to request approval prior to despatch. Shipment should not occur till approval or otherwise has been granted. See section 5.1.2 for the process to be followed.

MPT can provide example ISIR forms to the supplier for use. However, if the supplier has their own forms covering the requirements listed above, these are also acceptable.

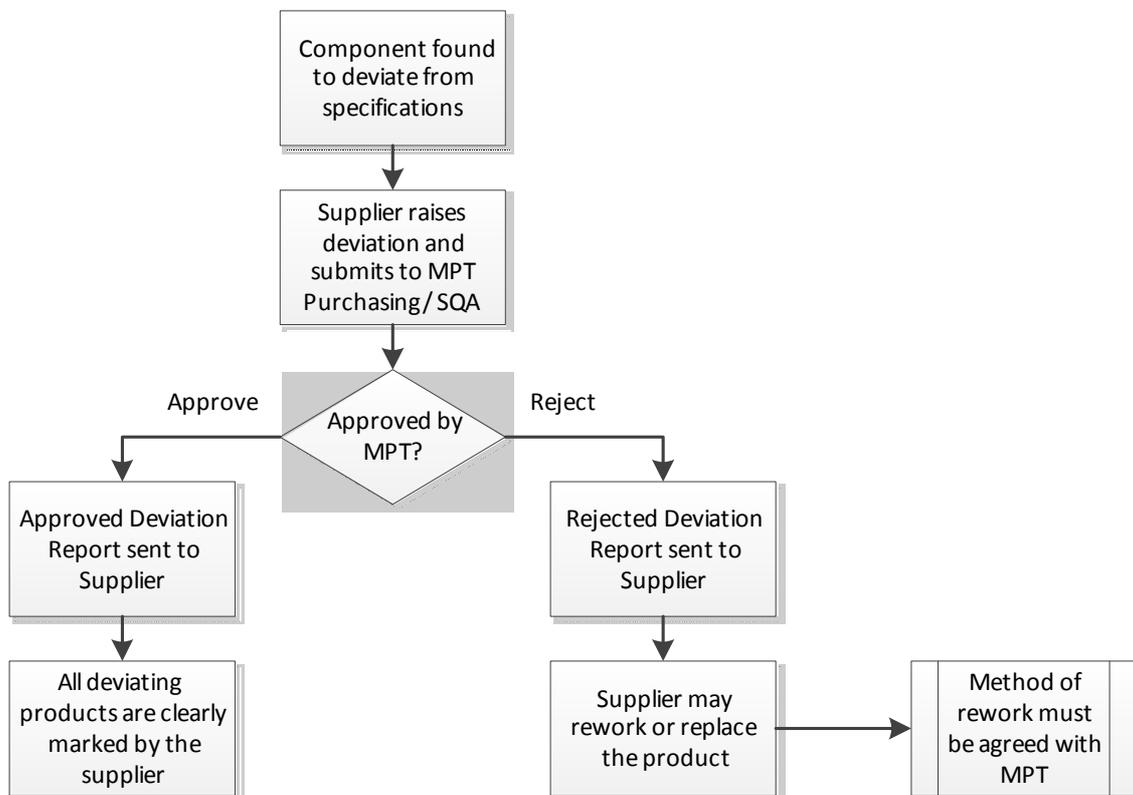
5.1.2 Deviation from specification

During the course of manufacture or processing of an order, a supplier may find that it cannot meet a specification as detailed in a MPT CAD model or drawing and needs to deviate away from the required specification of the product.

In this instance, it is essential that the supplier contacts MPT Purchasing/SQA as soon as possible explaining the situation. MPT will provide formal approval to the supplier in writing if acceptable.

It is the responsibility of the supplier to request approval from MPT prior to shipment.

All products supplied deviating from specification must be clearly identified (e.g. by appropriate label).



5.2 Return to Vendor (RTV)

MPT will raise a Reject Note where a product does not meet specification and it is found to be unacceptable for use.

Upon receipt of notification of a Reject, it is the supplier's responsibility to arrange collection at their cost. The supplier may then be given the option of either replacing or reworking the product. The supplier must agree with MPT an acceptable method of rework.

If it is necessary for MPT to carry out the rework due to time constraints, MPT may debit the costs incurred to the supplier.

Any components remaining at MPT after 14 days of notification will remain unpaid and be disposed of accordingly at the suppliers cost.

5.3 Services

Services provided by a supplier are subject to assessment by MPT that they have been carried out to a satisfactory standard. Payment of the suppliers invoice is formal acceptance that the service provided is acceptable.

Services in relation to a product may include for example, sub contracted; treatments and finishes, testing, analysis, simulation and design activities.

5.4 Methods and Equipment

MPT does not explicitly define the methods or equipment to be utilised by the supplier, but fully expects the Supplier to utilise the appropriate process, competence, skills, technology, tools, equipment and knowledge to ensure the final product/service fully meets requirements.

6 Supplier Performance Monitoring and Development

6.1 Vendor Rating

Where applied, Vendor Rating is used to give feedback to suppliers regarding their performance on an annual basis.

Supplier performance is reviewed monthly and consolidated across three areas; Quality, Logistics and Business Performance, each being weighted according to importance.

Where a suppliers performance doesn't meet expectations, a Vendor Corrective Action Report (VCAR) will be created. This document identifies areas of concern and is reviewed with the supplier, to plan necessary actions to improve performance to an acceptable level.

The overall aim of Vendor Rating is to promote open and honest communication between MPT and the supplier, with the intention of decreasing the Total Acquisition Cost of components and to improve a suppliers overall performance.

6.2 Complaints Management

When required, MPT may request that the supplier completes a root cause analysis of the problem using the 8D method. In this case the supplier must report back to MPT within 20 working days, the analysis undertaken, the root cause, the actions taken to correct and prevent recurrence, and how the actions were verified.

7 Payment Terms

MPT standard payment terms are 60 days end of month following the date of invoice. Payment terms outside of this standard must be agreed with MPT Purchasing in advance on the Vendor Data Sheet or agreed in the Supply Contract.

To avoid delays in payment, the supplier must ensure the MPT Purchase Order number, part number (where applicable), quantity and price (according to the Purchase Order) details are clear and present on the invoice.

8 Delivery Requirements

The purchase order/schedule defines the required delivery date. The delivery date is binding, where the supplier foresees a problem in achieving the required delivery date, the supplier must inform MPT immediately. Containment actions may be required to avoid delay.

The suppliers delivery/advice note must include the MPT Purchase Order number, quantity delivered, part number and revision level (where applicable) according to the Purchase Order details.

9 Packaging

The supplier must ensure all deliveries are packaged in a suitable manner for the type of product, weight and transportation methods employed. Whenever possible, reusable or recyclable packaging materials should be used. Components should be protected from transit/handling damage; environmental effects and corrosion. Higher risk commodities, for example electromagnets; must be clearly labelled to identify possible EMI risk for both handling and transportation.

10 Terms and Conditions of Purchase

Unless otherwise agreed in writing, or where a Supply Agreement is in existence between MPT and the supplier, all Purchase Orders are governed by the MAHLE Terms and Conditions of Purchase.

MAHLE Terms and Conditions of Purchase are also available on the MAHLE Powertrain website.

11 Abbreviations

MPT	MAHLE Powertrain Limited
RFQ	Request for Quotation
RTQ	Response to Quotation
ISIR	Initial Sample Inspection Report
8D	Eight Disciplines Problem Solving
EMS	Environmental Management System
SQA	Supplier Quality Assurance
RASIC	Responsible, Approving, Supporting, Informed and Consulted

12 Referenced Documents

ISO 9001

ISO 14001

Modern Slavery Act 2015

MAHLE Terms and Conditions of Purchase

F-G-1814-mul MAHLE Supplier 8D-Report

F-GEUK-7402-en Vendor Data Sheet

F-1525-7409-en ISIR Checklist

13 Links to our websites:

<http://www.mahle-powertrain.com/>

<http://www.mahle.com/>

ACKNOWLEDGEMENT OF RECEIPT OF SUPPLIER QUALITY MANUAL

I acknowledge that I have received, reviewed and understood the Supplier Quality Manual and that I must ensure that these are communicated to and complied with, by all employees of our company when carrying out work on behalf of MAHLE Powertrain Limited.

COMPANY:

NAME:

POSITION:

SIGNATURE: DATE:

Please return to:

Supplier Quality Assurance
MAHLE Powertrain Ltd.
Costin House
St James Mill Road
Northampton
Northamptonshire
NN5 5TZ
United Kingdom