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1. Introduction

VDL TIM Hapert BV (VDL TIM) is operating in highly demanding markets. With our strategic approach, we strive to foster enduring value for our clients, collaborators, and workforce. To stay at the forefront of innovation, we are committed to fortifying our ties and collaborations with our primary suppliers. It's imperative that we align in our commitment to a Zero Defect mentality, ongoing enhancements, and sustainable products and processes.

This Supplier Quality Manual delineates the expectations, prerequisites, and benchmarks for your role as a VDL Tim Hapert Supplier. It holds significant importance in every business engagement with VDL Tim Hapert and forms an integral component of all procurement agreements involving goods and services, our business methodologies, environmental prerequisites, and labor well-being.

Quality embodies a collective effort. As a supplier, we appreciate your role as a business ally, acknowledging your pivotal contribution to achieving exceptional performance. Together, we can forge and uphold a robust and successful partnership. Thank you for your continued support!

3. Scope

This Supplier Quality Manual sets the rules, standards, and requirements for VDL TIM` Suppliers to meet VDL TIM expectations.

The Supplier Quality Manual is valid for the supply of production materials, software and aftermarket products.

It applies to all suppliers along the supply chain providing products to VDL TIM and It is also applicable to customer directed suppliers.

4. General Requirements

4.1. Communication

All communications will be conducted in English unless otherwise requested by VDL TIM. Documents including PPAP and APQP documents shall be written in English.

The template : “Company Contact Details” and for foundries, “RFI (Foundry Key Figures)” must be properly filled out and returned to VDL TIM. It will be shared and requested from VDL TIM purchase to be filled but in case of any changes from latest situation, supplier shall share updated document with VDL TIM.

4.2. Confidentiality Agreement

Documents handed by VDL TIM Hapert may consist confidential information (or from our customers) and it must be handled with care. That is to say we need supplier’s confidentiality and integrity within supplier’s organization. In this context, confidentiality is a set of rules that limits access to information, integrity is the assurance that the information is trustworthy and accurate treated. This agreement will be sent to the supplier and must be dully signed before we can start a RFQ.

4.3. Request for Quotation Guideline

Requirements with regards to Request for Quotations are additional to the VDL TIM General Purchase Conditions. The supplier must take the several conditions into account.

a. Quotation in breakdown format, according the VDL TIM template. Template will be shared with Purchase- on RFQ level

b. Sample procedure

c. Currency Euro

d. Price validity

e. Incoterms

f. Terms of payment

Specific requirements for castings, forgings or surface treatment on request available.

4.4. Electronic Data Exchange

Electronic data exchange between VDL TIM and suppliers are main focus of VDL TIM strategy. According to this strategy, data will be shared via “VDL FILE TRANSFER” system.

4.5. Special Characteristics

VDL TIM or it`s customer describes requirements on the technical drawings, specifications and relevant purchasing documents.

All characteristics shall be in compliance. However ``Special Characteristics`` require special consideration because these characteristics with higher risks. Deviations in these characteristics can seriously affect product safety, product lifetime, assembly, functionality, quality and violate regulations.

Special Characteristics are specified by VDL TIM or its customer. They shall to be identified as well by supplier in documents’ e.g. FMEA, Control Plan etc.

4.6. Changes to Product or Process

After receiving initial Product approval from VDL TIM, the Supplier shall not make any changes to the product and processes without prior written notification and agreement with VDL TIM. Any intended change, deviating from the latest PPAP approval, shall be communicated to VDL TIM to allow for a timely review and approval by VDL TIM. The Supplier shall follow this requirement across its entire supply chain, which includes its sub-tier suppliers.

Changes shall not be implemented prior to the receipt of written approval from VDL TIM at least minimum 12 weeks before. After the change implementation a new PPAP and PSW approval requires to release.

4.7. Product Safety

The supplier shall have documented process for the ``Product Safety`` management related products and manufacturing processes. VDL TIM requires their suppliers to designate a Product Safety & Conformity Representative (PSCR).

Product safety and product liability are particularly significant for companies in automotive industry. In order to prevent product liability risks, it is the responsibility of the supplier to guarantee the product safety.

4.8. Contingency Plan

Supplier shall identify and evaluate internal and external risks to all manufacturing process and infrastructure equipment which are essential to maintain production output and ensure that VDL TIM requirements met.

Suppliers are required to regularly review and update each contingency plan (at a minimum annually) using a multidisciplinary team including top management, and update as required. The contingency plan should include comprehensive testing of recovery actions

4.9. Control of Reworked or Repaired Products

The organization shall utilize risk analysis (such as FMEA) methodology to assess risks in the rework and repair process prior to a decision to rework and repair the product. The organization shall obtain approval from the customer prior to commencing rework or repair of the product unless these are not included in the agreed Control Plan during PPAP phase.

4.10. Nonconforming Products Disposition

The supplier shall have a documented process for disposition of nonconforming product not subject to rework or repair. For product not meeting requirements, the organization shall verify that the product to be scrapped is rendered unusable prior to disposal.

4.11. Record Retention Periods

The supplier shall define, document, and implement a record retention policy. The control of records shall satisfy statutory, regulatory, organizational, and customer requirements.

The applicable retention periods described in following standards:

IATF – 7.5.3.2.1 Record Retention

VDA 1 – Documented Information and Retention

AIAG – Record Retention

4.12. Customer Property

All tools for manufacturing, testing or inspection equipment belong to VDL TIM, supplier shall identify, verify, protect and safeguard customers' or external providers' property provided for use or incorporation into the products and services.

Details are defined in "Purchase Conditions".

4.13. Customer Specific Requirements

Suppliers are expected to comply with specific requirements of VDL TIM customers. Customer specific requirements issued by VDL TIM customers will be communicated on project basis and it will be subject to an agreement between VDL TIM and the supplier. When specific requirements are defined by the main customer, suppliers shall diligently comply with them. This includes reviewing technical specifications, adhering to cleanliness standards, and meeting functional safety requirements.

5. Supplier Qualifications

5.1. Quality Management System (QMS)

The primary objective of our quality management system is to attain the "Zero Defect" goal. A robust quality management system, established in accordance with the standards and regulations of IATF 16949, is a fundamental prerequisite for maintaining supplier relations with VDL TIM.

The efficacy of the Quality Management (QM) system should be evident through:

- Ongoing enhancement of processes, procedures, and products
- Consistent delivery quantity
- Reliability in delivery timelines
- Swift and effective implementation of corrective actions
- Open and effective communication across all levels
- Timely and appropriate handling of new and revised projects

The baseline requirement is certification in accordance with ISO 9001 by an accredited certification body. Automotive parts suppliers are additionally required to be certified according to IATF 16949. Suppliers not yet accredited to IATF 16949 shall have a plan in place to achieve certification.

Certification shall be provided by a recognized, independent, and accredited third-party certification/ registration body. Updated certificates need be shared with VDL TIM.

5.2. Quality Targets

In general, ``Zero Defect`` is the common expectation and ultimate goal for all Suppliers. It is expected that Zero Defect is achieved throughout the entire product/service lifetime supplied by all suppliers and sub-tier suppliers.

Supplier quality performance is partly related to the rejection rates. To set targets and come to a useful follow-up the PPM agreement is part of our partnership.

5.3. Supplier Audits

Every year an internal management review (VDL TIM) will take place from which audit plan will be drawn up, based on various criteria. The suppliers involved will be informed within a reasonable period of time. Suppliers will be audited according to the plan and the audit will be carried out according to "VDA 6.3 Process Audit" or equivalent procedures.

For the special processes or products, these audits can be applied or self-assessment requested:

- CQI-9 ; Heat Treatment Special Process Assessments
- CQI-12 ; Coating Special Process Assessments
- CQI-27 ; Casting Special Process Assessments
- Customer Specific Requirements (Foundry Index Audit etc.)

In some cases, unplanned audits will be carried out. These are:

- Customer claims affecting customer PPM / Delivery performance
- Re-occurrence for customer claims
- Customer claims that cause line stoppage

After every audit, results and findings will be shared with supplier and action plan is requested from suppliers withing 14 days.

6. APQP Advanced Product Quality Planning

6.1. Lesson Learned/Knowledge Transfer

Supplier shall have a process in place to document and share knowledge, primarily derived from experience within the organization. The supplier is required to review and apply lessons learned as an initial step in any project. This process should emphasize preventing defects rather than solely detecting defects.

Before completing the feasibility study, the supplier must integrate all pertinent lessons learned and knowledge garnered from previous or similar projects.

6.2. Feasibility Study

The supplier shall analyze all technical documents, including drawings, specifications, environmental considerations, customer requirements, as well as purchasing terms and conditions, and this Supplier Quality Manual, as part of their review process.

The supplier shall submit signed Feasibility Study form.

6.3. Project Plan

The supplier shall develop a project plan aligned with the specified milestones and submit it to VDL TIM for approval.

6.4. Special Characteristics

Importance of Special Characteristics is defined in section 3.5. The supplier shall identify and mark them in all relevant product and process documents, such as drawings, FMEA, risk analysis, work instructions, control plans. These characteristics demand specific attention, necessitating capable processes, error-proofing measures, special controls, and continuous monitoring at all relevant stages.

6.5. Process Flow Chart

The supplier shall establish a Process Flow Chart for the entire process chain from receiving inspection to packaging and shipping. The process flow chart shall be presented to VDL TIM. FMEA and Control Plan shall align with Process Flow Chart.

6.6. Product and Process FMEA

The Failure Mode & Effects Analysis (FMEA) shall be carried out to examine possible risks and their evaluation regarding to severity, probability of occurrence and the possibility of detection.

Special characteristics shall be included and evaluated in FMEA.

The FMEA shall be used as continuous improvement tool and shall be developed and revised.

6.7. Control Plan

The Supplier shall create & develop control plan for preventive process security. The supplier shall include in control plan:

- Controls used for manufacturing process control, including verification of job set-ups,
- First and Last part validation, as applicable
- Methods for monitoring of control exercised over special characteristics defined by both the customer and the organization

- Specified reaction plan ; when nonconforming product is detected, the process becomes statistically unstable or not statistically capable.

The Supplier shall review control plans and update as required , for any of the following:

- The Supplier determines it has shipped nonconforming product to the customer;
- When any change occurs affecting product, manufacturing process, measurement, logistics, supply sources, production volume changes, or risk analysis (FMEA);
- after a customer complaint and implementation of the associated corrective action, when applicable;
- at a set frequency based on a risk analysis.

6.8. Capability Study

The supplier shall agree to conduct the machine capability study and process capability study according to one of the automotive standards.

Unless otherwise stated by the customer minimum requirements of the special characteristics for capability:

- Machine capability/ short term process capability Cm/Cmk 1,67
- Preliminary process capability Pp/Ppk 1.67
- Process capability/ long term process capability Cp/Cpk 1,33

6.9. Logistics

VDL TIM ensures a logistics agreement with the supplier during the quotation phase. This comprehensive agreement covers aspects related to transportation, packaging, handling, and efficient supply chain management.

Products shall be delivered without damage, contamination, burr, machining chips and corrosion. Suppliers shall ensure the traceability of their products with batch identification and revision status.

6.10. Manufacturing Prototypes

When required by the customer, the supplier shall have a prototype program and control plan.

The Supplier shall use, whenever possible, the same suppliers, tooling, and manufacturing processes as will be used in production.

All performance-testing activities shall be monitored for timely completion and conformity to requirements.

When services are outsourced, the supplier shall include the type and extent of control in the scope of its quality management system to ensure that outsourced services conform to requirements

6.11. Audit Planning

The supplier shall audit internal products and processes using customer specific required approach. VDA 6.5, VDA 6.3 or equivalent procedure can be applied. Audits at sub suppliers shall also performed. Supplier shall have qualified auditors to fulfill the automotive standards.

6.12. Qualification of Special Processes/CQI

CQI (Continuous Quality Improvement) guidelines for the supplier dealing with special processes:

- CQI-8 Layered Process Audit
- CQI-9 Special Process: Heat Treatment System Assessment
- CQI-11 Special Process: Plating System Assessment
- CQI-12 Special Process: Coating System Assessment
- CQI-15 Special Process: Welding System Assessment
- CQI-17 Special Process: Soldering System Assessment
- CQI-23 Special Process: Molding System Assessment
- CQI-27 Special Process: Casting System Assessment

The CQI assessments are self-assessment and shall be performed according to CQI requirements at least annually. These self-assessment and action plans shall be submitted to VDL Tim.

7. PPAP Production Part Approval Process

Production Part Approval Process PPAP ensures that the Product is capable of meeting VDL TIM technical and performance needs. PPAP ensures that the intended specific manufacturing processes are in place, and that the Supplier is capable of producing Products of consistent and required quality expected by VDL TIM.

Suppliers are to use the latest version of the following reference manuals:

- Advanced Product Quality Planning & Control Plan (APQP)

  The supplier must implement and maintain control plans in accordance with IATF 16949/ISO 9001 and the AIAG APQP manual. Control plans must be in agreement with PFMEAs.

- Potential Failure Modes and Effects Analysis (FMEA)

  Process FMEAs must be done accordance with IATF 16949/ISO 9001 and the AIAG APQP manual. PFMEA inputs must include warranty issues, customer concerns, lessons learned and address past corrective actions. DFMEA is required if supplier has design responsibility.

- Measurement Systems Analysis (MSA)

  %R&R or P/T ratios over 10% must be approved by VDL TIM. MSA must be performed for all gauges listed

- Statistical Process Control (SPC)

7.1. Initial Samples

Initial samples are products made and tested under serial conditions (plant, machine, materials, test equipment etc.)

The test results on all characteristics must be documented within the initial sample report. The quantity of parts must be agreed with VDL TIM.

The initial samples shall be delivered on the agreed date and shall include the initial sample inspection report and documents according to specified submission level.

3D scanning must be performed based on valid 3D data model. Details of measurement are to be agreed with VDL TIM unless RPS points are not defined in technical specifications.

In a case where full approval is not granted, the products can be supplied based on a waiver approved/issued by VDL TIM. Meanwhile, the non-conformity must be corrected within a time frame agreed by VDL TIM, and the process approved by new PPAP submission, if requested by VDL TIM, from the Supplier or by revision of the drawings/specifications from Customer side.

VDL TIM reserves the right to issue a complaint at a later date about deviations from the specifications which have not been detected during the PPAP Approval Process.

7.2. Submission Level

In general, unless otherwise specified by VDL TIM, submission Level 4 requested. In some cases such as new supplier or non-similar product, on Supplier site full documentation review will be done by VDL TIM representative.

VDL TIM may require suppliers to submit additional documents and forms beyond those required by AIAG/VDA.

PPAP Submission Level Requirements		Level 1	Level 2	Level 3	Level 4	Level 5
1	**Design Record**	R	S	S	*	S
2	**Engineering Change Documents**	R	R	S	*	S
3	**Customer Engineering Approval**	R	R	S	*	S
4	**Design FMEA**	R	R	S	*	S
5	**Process Flow Diagram**	R	R	S	S	S
6	**Process FMEA**	R	R	S	S	S
7	**Control Plan**	R	R	S	S	S
8	**MSA Studies**	R	R	S	S	S
9	**Dimensional Results**	R	S	S	S	S
10	**Material, Performance Test Results**	R	S	S	S	S
11	**Initial Process Studies**	R	R	S	S	S
12	**Qualified Laboratory Documentation**	R	S	S	*	S
13	**Appearance Approval Report**	S	S	S	*	S
14	**Sample Product**	R	S	S	S	S
15	**Master Sample**	R	R	R	*	R
16	**Checking Aids**	R	R	R	*	R
17	**Compliance with Customer Requirements**	R	R	S	S	S
18	**Part Submission Warrant**	S	S	S	S	S

R	The organization shall retain at appropriate location and make available to customer on request
S	The organization shall submit to the customer and retain a copy of records or documentation items at appropriate locations
*	The organization shall retain at appropriate location and submit to the customer upon request

7.3. Material Data Reporting

Substance Declaration in IMDS Portal is a requirement for PPAP approval. IMDS (International Material Data System) is used to meet the obligations placed on automobile manufacturers, and thus on their suppliers, by national and international standards, laws and regulations.

Supplier shall report material and substance information for all types of purchased materials, components items supplied using the IMDS (www.mdsystem.com)

Company Name: VDL TIM HAPERT and Company ID: 102395

8. Serial Production Requirements

8.1. Material Flow & Traceability & Quality Records

To prevent batch mix-ups and ensure traceability, the "First in – First Out (FIFO)" principle for raw parts must be consistently applied throughout all processes and deliveries. The supplier is required to establish a clearly defined process that enables traceability of each part and production batch, all the way back to each production step.

Upon request, the supplier shall provide VDL TIM with certifications, raw material certifications, process details, and test/inspection data. It's important to note that this requirement does not override any regulatory or statutory obligations regarding record retention. Certain data may need to accompany the product shipment, and these details will be mutually agreed upon in advance with VDL TIM.

8.2. Complaint Management

Suppliers are required to promptly inform both VDL TIM and other relevant parties in the supply chain as soon as they become aware of any potential safety, quality, or delivery issues that could impact their products or services. This immediate notification is crucial for swift and effective resolution of any concerns that may arise.

After a complaint is issued, supplier shall follow the rules described below. These rules are valid in cases where there are no “special customer requests”.

- 24 Hours: Quick response: sorting at VDL TIM (3rd party company for the sorting allowed)
- 72 Hours: Containment actions fully implemented: 8D step D3 completed and sent to VDL TIM
- 10 working days: Root cause analysis done for occurrence and non-detection, permanent corrective action defined and implemented: 8D step D4 and D5 sent to VDL TIM
- 20 working days: Effectiveness of permanent corrective action checked and recurrence prevented: 8D steps D6 and D7 sent to VDL TIM

If necessary, other target dates may be established in agreement between supplier and VDL TIM.

In certain situations, additional costs may be incurred by the customer due to line faults, sorting activities, or installation expenses. If the complaint is related to the supplier, these costs will be attributed to the supplier. As VDL TIM, we recommend that suppliers establish agreements with third-party companies for sorting activities, complete with well-defined sorting instructions and methods. However, when urgent decisions are imperative, sorting can be initiated without awaiting formal approval. In significant or reoccurring problems “Controlled Shipping Level” regime can be case, The supplier shall immediately arrange for an inspection process to prevent further delivery of non-conforming parts. CSL cost will be paid by the supplier.

8.3. Requalification

A layout inspection and a functional verification to applicable customer engineering material and performance standards shall be performed for each product as specified in the control plans. Results shall be available for customer review.

Unless otherwise agreed with VDL TIM, annual requalification is required.

8.4. Deviation Approval

In case of deviations from the specification, supplier shall inform VDL TIM and submit “Deviation Request Form”. For some customers, customer`s deviation form can be used. The request must be approved prior to shipment.

Requests for approval are reviewed by the VDL TIM Project Engineer, Quality Engineer and the SQE. If the deviation is approved, the supplier will be e-mailed a copy of the notice of approval.

All deliveries based on deviation approval shall have additional identification labels. Specific label type and order number shall be agreed between the supplier and VDL TIM.

The supplier requesting a deviation must complete an 8D response identifying the cause, corrective action, and measures taken to prevent recurrence.

8.5. Continuous Improvement

The Suppliers are expected to use the lessons learned from each incident to improve production process, product design, or underlying business systems. The goal is to eliminate the possibility of similar incidents, not only by making procedural and process adjustments on the manufacturing floor, but by removing the environment that allowed the issue to surface. Lasting improvement requires correcting the systems and strategies that support the production process.

In addition to responding to identified non-conformances, supply partners should use statistical data to continually evaluate and refine their processes. This evaluation should include analysis of quality out of control indications, high PPM, scrap, downtime, and warranty failures. The clear objective of this analysis must be reduction of variation with the finished product. The supply partner shall have ongoing, active improvement projects that target the largest problem areas and be able to demonstrate a positive trend in reducing incidents and repeat occurrences.

9. Supplier Monitoring and Development

9.1. Supplier Monitoring

At a minimum, the following supplier performance indicators shall be monitored:

- Delivered product conformity to requirements;
- Customer disruptions at the receiving plant, including yard holds and stop ships;
- Delivery schedule performance;
- Special status customer notifications related to quality or delivery issues;
- Dealer returns, warranty, field actions, and recalls.

Quality Performance: calculated based on PPM Level and Customer Complaints.

PPM Level will be followed based on supplier processes.

Customer Claims will be followed and claims, supplier performance point will be deducted.

Delivery Performance: Calculated based On Time Delivery and Ordered Quantity.

On Time Delivery (OTD) will be followed. Points will be deducted if day deviations are outside the defined ranges

Ordered Quantity will be followed. . Points will be deducted if the quantity deviations are outside the defined ranges

Supplier Audit Performance: calculated based on QMS Compliance and Audit Result.

9.2. Supplier Development

Supplier shall implement actions necessary to resolve open (unsatisfactory) performance issues and pursue opportunities for continuous improvement.

Suppliers are required to work together with VDL TIM to seek for development actions on various levels in the organization, with the goal of improving Supplier performance and capabilities.

Meetings discussing the requested performance between VDL TIM and the Supplier will be scheduled and require participation. During these meetings, the Supplier shall present its analysis regarding its poor performance and its commitment to improving its performance and capabilities in the future. If VDL TIM decides there is a need for a process audit or other assessments, it will be carried out by VDL TIM within a reasonable time frame.

If the performance of the Supplier does not improve after defined time based on improvement plan, VDL TIM may take the decision to set new business on hold and / or phase-out the Supplier.

10. Health, Safety and Environmental Requirements

The supplier is responsible for identifying and implementing all necessary activities to ensure that both the products and corresponding production processes align with legal requirements and the specifications set forth by VDL TIM. This includes a comprehensive approach to compliance that encompasses both regulatory standards and the specific requirements outlined by VDL TIM.

The Supplier is expected to deploy and maintain an Environmental Management System based on ISO 14001 or equivalent.

The Supplier is expected to deploy and maintain an Health and Safety System based on ISO 45001.

11. Code of Conduct

In the context of social responsibility and referring to the United Nation Global Compact (htpp://www.unglobalcompact.org) VDL TIM is committed to conduct its business on the basis of ethical principles. VDL TIM also requests its suppliers to comply, which includes respect for universally recognized standards for the environment, human rights, labor and anti-corruption.