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Other applicable documents:

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Note:
- Responsible have to ensure that this LON is known and accessible to all affected departments.
- The version available on the Woodward L'Orange intranet applies.
- Changes are marked with "*" on the right.

	Examined	Approved
Release	Matthias Krammer	Herwig Flug

1. Purpose

This quality assurance guideline is valid for suppliers of production material. It forms part of the terms and conditions of purchase agreed between the purchaser and the supplier. This quality assurance guideline describes the mandatory specifications that apply between Woodward L'Orange and its suppliers.

2. Scope

The guideline is valid for direct material suppliers and is accepted with first delivery to Woodward L'Orange at the latest

3. Supplier's Quality Management System

Suppliers commit to implementing and maintaining a certified quality management system in compliance with the ISO 9001 standard as a minimum in order to be able to ensure the required quality of their products and services. By implementing of the contents of this guideline the quality system requirements out of the WPQR-9100 are fulfilled as well, which is accessible under request.

Commitment to the zero-defect target and a continuous improvement process for products / services must be demonstrated to Woodward L'Orange.

4. Audit

The supplier shall enable Woodward L'Orange to inspect its planning, production and quality assurance processes in use. This inspection will be made by way of previously announced process audits based on the VDA 6.3 standard and in case system audits.

The supplier shall ensure that Woodward L'Orange has free access during the audit to those areas that are relevant for Woodward L'Orange (e.g., Engineering, Planning, Production, Stocks, Measurement room, and so on).

The supplier shall enable comprehensive inspection of quality-relevant documents.

Woodward L'Orange will inform the supplier in writing about the results of the audit. If Woodward L'Orange should stipulate any actions resulting from the audit, the supplier is requested to consider and implement the actions as necessary in due time.

5. Information and Documentation

If the supplier should notice that any quality criteria, delivery quantities or deadlines are not complied with, Woodward L'Orange shall be fully informed without delay. If the supplier should detect any non-conformity after shipment, such non-conformity shall also be communicated to Woodward L'Orange immediately.

In case of process changes on supplier side Woodward L'Orange must be informed additionally. This is done with the PCN-Process (Process Change Notification) to the WLO-Supplier Development Engineer.

The supplier shows his change/s with the completed form “ICS Supplier Process Change Notification (PCN) Form”. For a template, refer to:

https://www.woodward.com/en/about/about-woodward/woodward-lorange/downloads

The form includes four categories based on them one category must be selected, see details in following.

The SDE makes the final decision for the category, if necessary, after internal coordination.

Category 1: The approval of Woodward L'Orange is necessary before implementing any change. This category is used at:

- Location change of manufacturing, assembly or testing of product
- Woodward L´Orange Fixed / Frozen Process
- Critical components
- Controlled criteria

Category 2: Suppliers must inform Woodward L'Orange of a change and get the approval before shipment. This category is used with:

- Source change (Including Source Change of a Special Process)
- Source Change of supplier design parts/products
- Fundamental manufacturing technology change
- Assembly or Test method change
- Tooling change to precision moldings or casting parts
- Manufacturing processes change for casted or molded parts
- Woodward L’Orange defined keys
- Software change (embedded software, firmware, boot-code)

Category 3: Suppliers are required to notify Woodward L’Orange and obtain Woodward L’Orange SDE approval of changes prior to shipment of parts. This category will be used when:

- Manufacturing methods change (e.g., from drilling and reaming to drilling and turning)
- Control Plan / Inspection Plan change
- Replaced or Modified manufacturing tooling (change of the arrangement of units or replacing, renewing or change of tools (does not include perishable tooling))
- Capacity Management (rearrangement of manufacturing processes on additional machines to avoid capacity bottlenecks) and Machine Offload
- Business System Changes (e.g., SAP-changes)

Category 4: No notification to Woodward L'Orange required. This will take place for following:

- Regular administrative shop management activities (change of cost centres, change of machine numbering, 5S or other preventive maintenance activities, lean activities, etc.)
- Quality system changes (administrative changes or adaptions in the quality system of the supplier which have no influence on provisions (e.g., calibration cycles, training frequency, etc.))

Note: Routine Tool replacement and process adjustments that are managed through the defined control plan are not considered process changes. PCN NOT required.

6. Agreement on Product and Process

The supplier shall only deliver products that have the agreed properties to the full extent. The supplier shall verify that the documents provided by Woodward L'Orange are free from errors, complete and plausible prior to accepting the order.

If this should not be the case, the supplier shall respond by informing Woodward L'Orange in writing before accepting the order.

7. Planning of Products and Processes, Contract Review

During the contract review, the supplier creates a feasibility study and submit it to Woodward L'Orange along with the quotation.

The supplier shall plan the processes required for production. This includes, for example, the preparation of work plans, equipment plans or test plans. The supplier shall ensure the suitability of production facilities and production equipment. The documented proof shall be provided by the supplier by regular inspections.

Planning shall also cover capacities, any necessary qualifications of employees, test processes, logistic processes and products.

8. Product and Process Approval with PPAP

The production process- and product approval takes place with the production part approval process (PPAP). A new PPAP shall only be required after discontinuation of production of > 36 months and than with cover sheet, measurement of 3 parts and the confirmation that there happened no any process changes.

As a matter of principle, all characteristics created or influenced in the production process shall be verified according to drawing and 3D model. If the inspection requires special test equipment unavailable to the supplier/contractor, an external test centre must be commissioned. The supplier/contractor is responsible for this inspection. A standardized inspection procedure and/or standardized measuring points on the part shall be agreed between the supplier/contractor and Woodward L'Orange, if necessary.

The inspection results shall be documented by way of inspection reports according to PPAP risk classes. Based on any potential future risk the content of the PPAP depends

on 4 classes. Depending on the ordered class, the supplier must deliver different documents. The in following mentioned documents must be attached to every initial sampling:

- Cover sheet „Part Submission Warrant“
- Dimensional Inspection Results / Balloon drawing
- Material test results (material- and heat treatment certificates)
- Risk Analysis (83-501-00163)

The following listed documents are also required depending on the ordered class. Vendor-specific documents which are content-related comparable with the Woodward L’Orange templates will be accepted by Woodward L’Orange, as well:

- Process Capability Study and
- Measurement System Analysis MSA for from Woodward L’Orange specified Keys
- Process Flow Diagram (manufacturing process steps including external ones)
- Control Plan (at least inspection plan with inspection process steps, test frequency and used test equipment)

https://www.woodward.com/en/about/about-woodward/woodward-lorange/downloads

Based on special requests on Woodward L’Orange side, the following documents could be also ordered in case:

- Acceptance record for supplements / devices, if applicable
- Photographic documentation of the casting pattern, if applicable
- Design and development approvals, acceptance records, if applicable

Dimensioned parts shall be clearly numbered consecutively in order to safeguard the correlation of the parts with the measurement results. The method of marking shall be coordinated with Woodward L’Orange if necessary.

For similar parts, an overall FMEA for processes or part families is sufficient. For production, a process FMEA shall be created and in case of development for Woodward L’Orange, an additional design FMEA shall be created. Sending of the FMEA is not desired, however, its substantiation in the initial sample cover sheet.

Any classification society approvals required shall be substantiated.

Series production shall not be initiated by the supplier before receiving written approval of the sampling process by Woodward L’Orange.

Exceptions:

- Standard and catalogue parts are exempted from the sampling procedure.

- For very small amounts and spare parts, the scope of sampling shall be agreed in writing with the acceptance department and noted down on the cover sheet.
- For shipments from the stock, a cover sheet and a related note in the observations field shall be sufficient unless there were any complaints in the previous shipment

By implementing of the above-mentioned contents, the requirements out of the WPQR-9102 are fulfilled as well, which is accessible under request.

9. Manufacturing

In the event of any quality or process deviations during production, the supplier shall analyze these in order to detect the root causes of the defects.

Measures for improvement shall be initiated and their efficiency shall be verified.

10. Marking

Marking of products shall be as agreed with Woodward L'Orange. If individual marking is not agreed, it is necessary to ensure that unambiguous identification is possible during transport and storage.

11. Traceability

The supplier shall ensure the traceability of products and the containment of any defective parts / batches.

12. Concession

If the supplier should detect a minor non-conformity with specifications, an exceptional release issued by Woodward L'Orange can be applied for and before delivering parts in writing. Woodward L'Orange sends exceptional releases to suppliers in writing, if any. For an application form, refer to: https://www.woodward.com/en/about/about-woodward/woodward-lorange/downloads

Woodward L'Orange reserves the right to invoice the effort involved.

13. Cleaning, Technical Surface Cleanliness

The requirements on the surface cleanliness of our products are high and have a direct influence on the function and service life our products.

They are described in the LON-114a.

14. Delivery, Packaging

The supplier shall deliver the products to Woodward L'Orange according to valid delivery rules or in suitable transport packaging. The transport packaging provides complete protection during transport and protection from corrosion, contamination and damage.

The planned type of packaging must be coordinated with Woodward L'Orange in time before starting the serial deliveries. The supplier must start this process on personal initiative.

The requirements from Woodward L'Orange for the handling of charge carriers and the material must be fulfilled. If there are no any special packaging instructions given the general packaging instruction and the work instruction for usage of VCI-products from Woodward L'Orange are valid, available as following:
https://www.woodward.com/en/about/about-woodward/woodward-lorange/downloads

15. Complaints

If Woodward L'Orange should detect any deviation from the specifications when receiving the goods or during subsequent production steps, a notification of defect in 8D format will be sent to the supplier immediately.

The supplier shall be obliged to perform a defect analysis immediately and communicate the results to Woodward L'Orange.

To support the systematical problem solving the 8D notifications can be used, refer to https://www.woodward.com/en/about/about-woodward/woodward-lorange/downloads.

Unusable products will be promptly returned to the supplier.

The 8D report filled completely must be returned by the supplier, indicating the actions envisaged for eliminating and preventing the defects.

If supply difficulties should arise because of complaints, the supplier undertakes to remedy the situation by taking suitable immediate action at its own charge. Such actions include, for example, replacement deliveries, extra shifts, sorting activities, special transport arrangements, etc.

16. Environmental Protection / Health & Safety / Energy

The supplier commits to complying with all legal regulations for environmental protection, health and safety and energy efficiency. The aim is to reduce the impact of industry on human beings and the environment to a minimum.

Woodward L'Orange recommends obtaining environmental, health & safety, and energy certifications according to DIN ISO 14001, ISO 45001 and DIN ISO 50001.