

Quality Guideline

Document
Quality Management
Belassi GmbH



Quality Guideline Belassi GmbH

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Document Nr.: 4
Page: 1

DQ002_V04_QUALITY GUIDELINE_EN.DOCX

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Document
Quality Management
Belassi GmbH



1	Purpose / Objective.....	3
1.1	Purpose.....	3
1.2	Objective.....	3
2	Scope.....	3
3	Further Applicable Documents.....	4
4	Gender Information	4
5	Further Agreements	4
6	Change History.....	4
7	Distribution.....	4
8	Attachment.....	4
9	Description.....	4
9.1	Requirements product quality planning.....	4
9.1.1	Materials and Chemicals.....	5
9.1.2	Methods and Tools.....	5
9.1.3	Approval process	5
9.1.4	Critical characteristics.....	6
9.1.5	Feasibility.....	6
9.1.6	Sample status.....	7
9.1.7	Traceability.....	7
9.1.8	Packaging.....	7
9.2	Requirements production process	7
9.2.1	Capability studies.....	7
9.2.2	Rework.....	8
9.2.3	Process trial run	8
9.2.4	Process qualification.....	8
9.2.5	Prototype and samples process.....	8
9.2.6	Series and pre-series process.....	9
9.2.7	Change Management.....	10
9.2.8	Complaint Management Rules.....	10
9.2.9	Acceptance & Conflict of Contracts.....	11
9.2.10	Conflict Solution	11

Author: A. Czernak, K. Liao
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Document Nr.: 4
Page: 2

DQ002_V04_QUALITY GUIDELINE_EN.DOCX

Quality Guideline

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Quality Management
Belassi GmbH



1 Purpose / Objective

1.1 Purpose

This quality standard specifies the requirements for manufacture components. It includes both product requirements and process requirements.

1.2 Objective

The aim is to ensure delivery quality, reliable functioning in practice and therefore the fulfilment of the quality requirements.

2 Scope

Suppliers of BELASSI GmbH.

Suppliers which manufacture; supplied, self-produced or provided parts.

The fulfilment of the quality requirements is the pre-condition for the production release of the component. The documents provided in the list below shall serve as the basis for the development and production of the components. If any deviating data should occur, the following priority information shall apply:

- Release drawing
- Technical specifications
- Quality guideline

Quality Guideline

Document
Quality Management
Belassi GmbH



3 Further Applicable Documents

Document	Title of the Document
DQ001	Surface quality requirements_EN
DQ003	Test Instruction_EN

4 Gender Information

Due to better legibility we are going to abstain in this document from gender specific language. Of course, everything in this document applies on men and women the same way and is meant this way.

5 Further Agreements

If the information in this document differs from the information in the associated specification sheet, the provisions and information in the specification sheet apply.

6 Change History

Version	Date	Page	Type of Change
V04	06.04.2021	5	Chapter 9.1.1. Wording Changed

7 Distribution

8 Attachment

Nr.	Title of the Document

9 Description

9.1 Requirements product quality planning

The following chapter contains the quality-related requirements regarding the Advanced Product Quality Planning (APQP):

Author: A. Czernak, K. Liao
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Date: 08.04.2021

Document Nr.: 4
Page: 4

DQ002_V04_QUALITY GUIDELINE_EN.DOCX

9.1.1 Materials and Chemicals

Based on the legal environmental requirements, every supplier is responsible to use exclusively a REACH – in case of electric/electronic Part the RoHS - conform Materials and chemicals for the production and testing components and Parts for Belassi.

During the Quotation the suppliers shall to confirm written to the Purchasing Department of Belassi the fully REACH – in case of electric/electronic Part the RoHS - conformity.

Latest in the Prototype phase, the suppliers are obligated to provide the MSDS (Material Safety Data Sheet) of every used Materials and chemicals (lubrication, grease.) to Belassi.

Furthermore the suppliers are responsible - for every Product related raw material -to submit the Raw material certification. (Belassi prefer the 3.1 inspection Certificate- Including the chemical composition and mechanical properties of the raw materials)

9.1.2 Methods and Tools

In order to implement a reasonable maturity level improvement BELASSI requires several methods and tools in the APQP process.

Depending of the supplier responsibility (e.g. development supplier, parts manufacturer) there must be FMEAs executed. Results of the FMEA workshops could be required tests for the engineering approval (DFMEA – DVP&R) and also production checks in different productions steps (PFMEA – control plan) .

9.1.3 Approval process

The approval process must be carried out according to the requirements: PPAP Level 3.

Approval parts are produced under series conditions must therefore fulfil the following criteria:

- All production-related systems, moulds, testing and auxiliary equipment are in accordance with the current series standard.
- The parts must go through all required and defined test steps according to the control plan and/or all process steps according to the process flow diagram with a positive result.
- The internal process approval and/or part qualification has been successfully completed.
- Production was carried out using a standard production machine, equipment.
- Production was carried out using standard production moulds and tools.

- Production was carried out by trained expert personnel.
- Approved packaging and/or defined replacement packaging is available.

The following sources of proof are to be submitted to BELASSI in the course of the PPF/PPAP:

- The quantity of initial samples can be taken out of the table item no. 9.2.5 & 9.2.6 and the parts must be according to the last applicable drawing (2D measurement report), as well as the final visual inspection must fulfil the applicable zone definition or customer requirement

Any deviations from the points mentioned above must be presented to the quality assurance officer for approval purposes when submitting an offer for new products / projects.

9.1.4 Critical characteristics

Product characteristics with special significance are determined by the technical responsible of BELASSI. It is the responsibility of the supplier to confirm them or to inform BELASSI if they are missing. In addition, the supplier must define further characteristics which are essential for a safe and intended function. The process characteristics are determined by the supplier and must be committed by responsible persons of BELASSI.

Furthermore, special characteristics must be evaluated and documented in all quality relevant documents (FMEA, Control Plan, etc.). The choice of characteristics is made according to determined drawing specifications, planned manufacturing conditions as well as production and product requirements.

9.1.5 Feasibility

The supplier accomplishes the feasibility analysis in the quality advance planning context and evaluates the feasibility and accomplishment of the specifications with his know-how together with production, subcontractors and if necessary, with BELASSI's responsible persons out of the R&D and quality departments.

The feasibility analysis of the supplier must include the following proof:

- Evaluation of the required part-specific measuring devices
- Are devices necessary for required rework, measurement and/or part qualification
- Evaluation of the process analysis risk in tests, devices, characteristics etc.

9.1.6 Sample status

The general requirements regarding the sample versions are provided from the drawing. The functional requirements refer to the technical specifications.

9.1.7 Traceability

During the entire product creation process (A, B, C, D samples) and in the series production, a complete traceability of all critical product and process data (system and machine settings) must be ensured by the supplier. The minimum requirement is based on the requirements of the BELASSI quality guideline. Each component must feature two stamps for labelling purposes. Here, a distinction is being made between development phase and series production (starting with initial sampling).

9.1.8 Packaging

They may not damage the component or modify it in any way (geometry, scratches, etc.). An appropriate packaging is required for:

- the delivery of components and elements to the supplier
- the internal transport of semi-finished products at the supplier's location.
- the transport from the supplier to BELASSI.

The packaging for BELASSI must comply with the following technology-specific requirements:

- Abrasion-proof
- Protection against dust and water

9.2 Requirements production process

The following chapter contains the quality-related requirements regarding the production process:

9.2.1 Capability studies

With a view to preventive quality assurance, the supplier carries out studies regarding the process and measurement equipment capability

In this regard, the following capability indices are to be achieved:

- Short-term capabilities: > 1.67 (at least 30 pieces)
- Long-term capability: > 1.33 (at least 200 pieces)
- Measurement equipment capability: 1st stage: > 2.00, 2nd stage: GR&R < 10 %

9.2.2 Rework

The term rework refers to all measures that are carried out on a defective product in order to make it fulfil the specified requirements. This special rework must be indicated to BELASSI and all essential actions need to be approved.

Necessary required rework steps (after the primary process) must be also coordinated with the BELASSI representative, this especially includes:

- Further treatment of burrs
- Subsequent surface treatments
- etc.

9.2.3 Process trial run

For the determination of preliminary process capabilities as well as the process stability, a pilot run (internal process series) takes place and the results must be sent to the responsible persons of BELASSI. If there are deviations the supplier must analyse the reason in a systematic way (e.g. use Ishikawa diagram) and must implement effective preventive actions.

9.2.4 Process qualification

Within the context of process development and verification, tests ensuring process stability and process control must be planned and carried out in coordination with the BELASSI quality department. These must at least include the following analyses:

- Production cycle with corresponding quantity / at least one production shift
- 5 parts based on the critical characteristics at the start of production / middle of production / end of production (total quantity > 60 pieces).
- Validation of functionally relevant characteristics
- The treatment of surfaces must be carried out using fully or semi-automatic processes. Corresponding proof for the capability is to be provided.

9.2.5 Prototype and samples process

- Prototypes and samples are parts produced in early stages (additive manufacturing, machining process, small series tools, ...) or smaller quantities (up to around 10 pieces) showing some engineering changes in series tools.

Quality Guideline

Document
Quality Management
Belassi GmbH



- For prototypes and samples BELASSI needs more detailed information about the parts, which means that there are additional requirements for testing and measuring compared to a series process.
- The measured parts must be marked with visual numbers for delivering to BELASSI to identify exact protocol / report which fit to parts.

Quantity		10pcs↓
Dimensions	All dimension	3
	Critical Dimension	All
	SPC Dimension	0
Destructive Test (hardness...)	Agreement	TBD
Functional Test (balance, Leak...)	Agreement	All

9.2.6 Series and pre-series process

- Visual inspection are expected 100% check in series production parts before packaging, our prime quality specification required to assure that the visual parts are perfect as well as the functional part need to be checked the surface or functional areas that visual inspection are good.
- The measured parts must be marked with the visual numbers for delivering to BELASSI to identify exact protocol/report which fit to parts. (graphic next page)

Quality Guideline

Document
Quality Management
Belassi GmbH



Quantity		50pcs↓	51~150pcs	151~500pcs	500pcs↑
Pre-Series Production (Dimensions)	All Dimension (PPAP samples)	3	3		
	Critical Dimension	5	5		
	SPC Dimension (Short Term)	30	30		
Destructive Test	Agreement	TBD – in the control plan			
Functional Test	Agreement	All	All		
Serial Production (Dimensions)	All dimension	0	0	0	0
	Critical dimension	5	5	5	5
	SPC Dimension (long term)	5	5	5	5
Destructive Test	Agreement	TBD – in the control plan			
Functional Test	Agreement	All	All	All	All

9.2.7 Change Management

- ALL changes in the supplier process, Production Location, sub supplier chain, personal, technology, that can have any effect to the delivered product quality, delivery and lead times or any cost, must be communicated previously to the change.
- The implementation of the change can be realized only after written approval from Belassi.
- The conditions for the approval need to be agreed with Belassi: e.g PPAP Process.
- Suppliers shall have a Change management Process and maintain an Information DB in order to trace back every changes and revisions like a Part CV.

9.2.8 Complaint Management Rules

ALL Customer Complaints/Customer feedbacks need to be managed at the suppliers via 8D Method.

In every single complaint the supplier is implementing within 24h/1 Work Day the Containment Actions and ensure to Belassi that no more uncontrolled deliveries arriving the customer.

Within 5 Working Days (in special cases after reception of the claimed part) the suppliers Analysing the Root Cause of the Problem (in case of needs – not easy identifiable root cause) we prefer the 5Why and Ishikawa method.

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Document Nr.: 4
Page: 10

DQ002_V04_QUALITY GUIDELINE_EN.DOCX

Quality Guideline

Document
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Within 10 Days the supplier shall implement a corrective action and submit the 8D Report to Belassi.

Verification of the Corrective actions need to be done at the next production batch with 100% Control.

9.2.9 Acceptance & Conflict of Contracts

Every offer from supplier side is a confirmation of acceptance of every in this document and other applicable documents written Belassi requirements and rules.

In case of any conflict between the supplier sales conditions or other agreements and this Quality Guideline from Belassi, this Document override the other documents.

9.2.10 Conflict Solution

This Guideline is governed by the local Law of the Customer statutory seat.

Every Conflict between Customer and Suppliers will be solved at the ordinary jurisdiction of the local court of the district in the Customer statutory seat.

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Document Nr.: 4
Page: 11

DQ002_V04_QUALITY GUIDELINE_EN.DOCX