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	<p align="center">ED-Sampling requirement</p>	<p>Compiled by ED/PUQ Bulling</p>	<p>Date 16.06.2009</p>

1. Initial sample (ISIR)

Always use forms according to VDA Vol. 2 and/or according to AIAG -PPAP.
(further customer requirements from VQP shall be taken into account)
The current version of the Bosch – part list shall be listed in the measurement report.
All items of the parts list (s) shall be listed and confirmed along with the current validity period/status. In the case of assemblies, include designation of subcontractor and approval certificate.
It is recommended that model test reports be presented in electronic format (Bosch Bühl specified software).

The cover sheet has to be filled out entirely(part number, designation, version of parts list and drawing, tool no., number of cavities, manufacturing machine / line , number of produced parts etc.) and signed by the quality assurance office.

Confirmation of N2580 (ingredients bans and declarations) must be listed in the PPAP.
The inspection plan (PQP) with revision level must be listed in the PPAP.

2. process change

Process changes may be undertaken only after written approval. The process change slip number must be entered in the change test report.

3. Preventive quality assurance plan (VQP/AQP)

The VQP features must be identified in the control plan and in the FMEA.

The cover sheet of P-FMEA confirmation must be sent not later than with the sample inspection report.

Occurrence probability (O) should be generally $O \leq 2$;
occurrence probability $O > 2$; detective probability $D \leq 5$ must be used as basis.

4. Sampling procedure



ED-Sampling requirement

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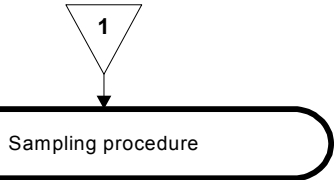
Date
16.06.2009

Responsible

Sampling procedure for suppliers

Remarks

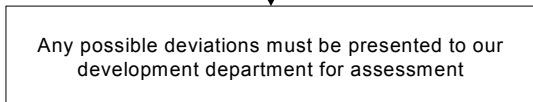
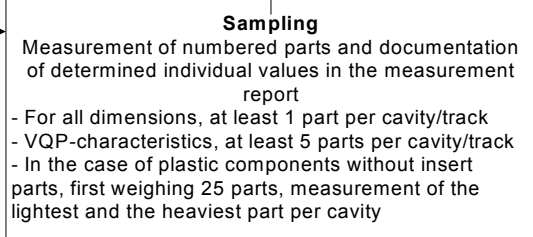
Exceptions from the procedure permitted only with written approval and coordination of PUQ-Ing.



In the case of complex components, if required in the VQP, a measurement comparison must be made prior to the drawing up/presentation of the ISIR

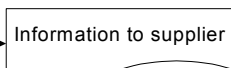
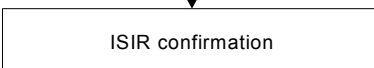
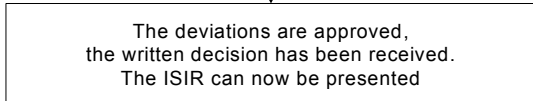
Machine capability studies in accordance with technical drawing or VQP specifications or internal specifications (P-FMEA) - at least 50 individual values per cavity/track

- VDA Vol 2 or
- AIAG-PPAP if demanded



No, ISIR correction(s) required

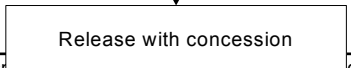
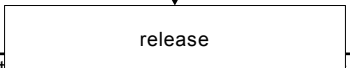
yes



No, rejection and/or tool correction in accordance with rejection letter

yes

Yes with approved items



Elec. Data files for the ISIR must be requested by the supplier

The ability of test equipments is assumed

All characteristics of the RB drawing as well as all the standards contained in the partslist, BV, PV, etc. must be measured and verified in every detail

No from/to values permitted, except in the case of form descriptions such as e.g. roundness, curvature etc.

VQP closed and returned to issuer with PQP and FMEA confirmation latest with the ISIR

The measured parts must be marked and included with the ISIR

In the event of rejection a new ISIR must be presented

In the event of release with concession, only those characteristics which are affected by the correction should be listed or documented in the measurement report. The position numbers from the ISIR must be retained.



Supplier

Supplier

Supplier

ED/PUQ-MP,
ED/PUQ-SB

Supplier

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5. Execution

5.1 Materials:

all material has to be identified clearly by:
- 10 digit Bosch-Material-No. released in RBMDS - Database
and
- description of all content

The 'description of all content' must be given by one of the following:

- a) International standard (Norm), such as ISO (preferred solution)
or
- b) Bosch- standard (Bosch-Norm)
or
- c) Order Specification

Metal → Material inspection certificate from independent inspection representative containing chemical analysis, mechanical properties and all properties marked with "+" in Bosch standard or in Bosch order specification.

Procedure should be similar or same as described in DIN EN 10 2004 for material certificate 3.1

Plastic → Material certificate of the used material, confirmation of all properties mentioned in Bosch standard or in Bosch order specification, completed PUQ plastic data sheet and completed process parameter data sheet

Rubber → Material certificate of the used material, confirmation of all properties mentioned in Bosch standard or in Bosch order specification

Electronic components → All electronic components have to be released by AE

Cable and wire → Material certificate of the used material (core and insulation), confirmation of all properties mentioned in Bosch standard or in Bosch order specification

5.2 specific characteristics concerning production processes:

Surface treatment/ lacquering processes



→ Confirmation of all properties mentioned in Bosch drawing and in Bosch order specification, measurement of layer thickness and results of resistance test against environmental influences (corrosion test)

Thermal treatment

→ Confirmation of all properties mentioned in Bosch drawing and/or in Bosch thermal treatment specification (e.g. hardness, Effective hardening depth etc), completed checklist thermal treatment process.

internal thread

→ confirmation of all properties mentioned in Bosch drawing and in Bosch order specification (e.g. surface roughness etc), measurement of core diameter and mandril gauge test for thread.

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external thread

→ confirmation of all properties mentioned in Bosch drawing and in Bosch order specification (e.g. surface roughness etc), measurement of outer diameter and gauging ring test for thread.

5.3 Statistical process control

In the case of SPC features according to drawing and/or specification from the preventive quality assurance plan (VQP) the following details shall be submitted with the samples:

Analysis of each cavity with declaration of nominal value, tolerance, \bar{x} –average, $cm/cm_k \geq 1,67$
and cp/cpk (short term) $\geq 1,67$
(cm /cm_k min. $n = 50$)

Basis of cp/cpk (short term) 125 single values from 25 random samples per 5 parts.
 Cp/cpk calculation with deduced tolerance (measurement uncertainty)

Basis: Production of one shift or minimum 1000 parts.

Tools > 8 cavities basis for cp/cpk (short term) is the worst and best cavity from cm /cm_k calculation.

For all statistical evaluated characteristics a capability of measurement has to be present to PPAP.

6. D/A-mandatory parts

D/A-mandatory parts shall be identified with the D/A stamp.





The following documents shall be submitted in addition to the samples:

- signed D/A letter ; D/A attest
- in the case of D/A-mandatory material: results of actual material test
- a statistical evaluation of the D/A-mandatory features according to point 5.3

7. Requalification

All products shall be subjected annually to a full dimensional and functional test in accordance with the product control plans according to ISO TS 16949, taking account of the customer specifications with respect to material and function.

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Bosch / PUQ reserves the right to access the results. Details of the requalification testing should be agreed individually on a case-by-case basis (VQP).

8. Comment:

The entire supplier's VQP requirements shall be completed when presenting the sample.

Samples that do not comply with this sampling requirement will be refused and returned unprocessed.

Annex: Bosch- cover page PPAP
P-FMEA confirmation
Material specification for plastic parts
Plastic process parameters data sheet
Surface treatment according to Bosch standard
Checklist thermal treatment process

ED/PUQ
signed Bulling