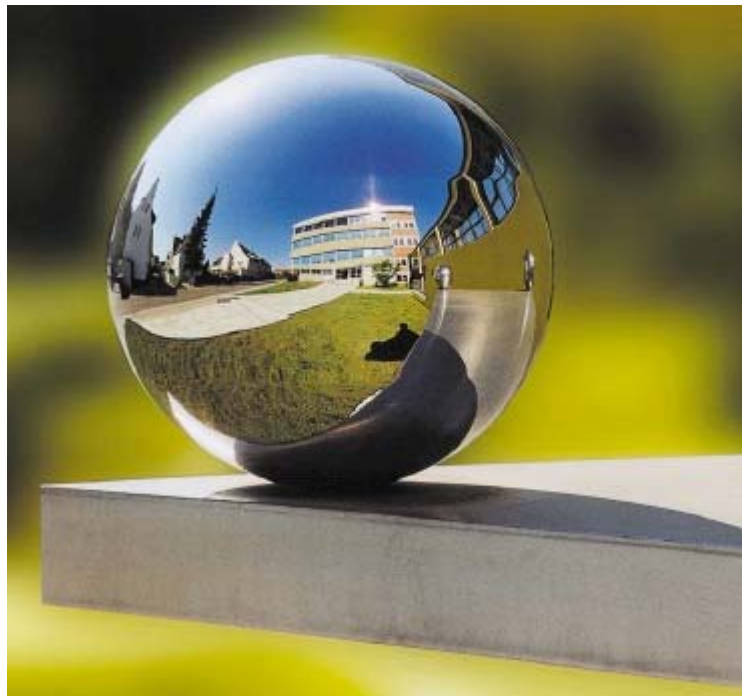


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# **Guideline** **Production Process and Product Approval** **(PPAP Requirements Vendor Parts)**

Implementation of Requirements to TS 16949



E-T-A Elektrotechnische Apparate GmbH

## Preface

To meet the requirements of TS16949, E-T-A uses the procedure for production process release and product approval (PPPPA) on the basis of VDA Quality Management in Automotive Industry, vol. 2 "Quality Assurance of Deliveries", for purchased parts to be used in automotive applications (passenger cars and utility vehicles). You will receive a corresponding note with our First Sample Order.

The vital aspects of the PPPPA are summarised below:

1. Purpose
2. Evaluation of manufacturing process
3. Evaluation of product
4. Preparation of documents
5. Evaluation of series process

## 1. Purpose

The release process for series parts ensures that products meet the requirements of E-T-A or E-T-A customers. This includes production parts and materials which are going to be a part of our products. For purchasing standard parts (from catalogue or inventory) we will only conduct the release procedure when E-T-A stipulates the specification with the supplier.

The procedure particularly accounts for production processes. Therefore the release includes:

- processes by process capability studies and/or process audit
- products by sample inspection

Thus it will be ensured that such products which have been produced with mastered and capable process meet the stipulated requirements.

Main idea of the procedure is to enable the supplier himself to give the customer a binding declaration whether the series parts release process has been completed successfully.

## 2. Evaluation of manufacturing processes

Planning, development and introduction of mastered and capable processes is a vital part of the activities for launching new or modified products and/or processes.

There will be documents and records proving the conduction of the activities during series parts release procedure. They include system FMEA, process FMEA, flow charts, production and test plans, results of process capability investigations.

The documents will be forwarded to submitted to E-T-A in accordance with the required submission level (see item 4). In addition E-T-A may carry out a process out, e.g. to VDA 6 part 3. The audit can be carried out in connection with a series part release at the supplier's.

## 3. Evaluation of product

Samples are product specimens with which can be tested whether the stipulated requirements are met. We distinguish various types of samples.

### Prototypes

Prototypes can originate from provisional production processes. A corresponding processing as with first samples is desirable. Minimum requirement at any rate is a test protocol about a marked part with comparison of set and true values in the drawing and information about material composition.

Independent of prototyping a first sample inspection is always required for series release.

### First samples

First samples are parts, aggregates or other production materials which have completely been built with series production means and under series production conditions. A successful release of first sample is a pre-condition for subsequent series delivery.

### Submittal of first samples

All first samples have to be manufactured with processes or tools which will be used for regular series production.

Submittal of first samples is indispensable in the event of:

- new parts which have not been supplied to E-T-A before
- design changes affecting dimensions, material or function of a series product
- remedy of fault parts, after tool repairs
- production transfer of tools, machinery or equipment
- change of sub-contractors or service providers, e.g. heat treatment or coating
- process changes
- introduction or change of released test methods

## Preparation of First Sample Inspection Reports by Suppliers

The supplier has to make sure before delivery that the first samples meet the our requirements with regard to all stipulated characteristics. This has to be proved by means of a First Sample Inspection Report.

Characteristics which cannot be verified by the manufacturer, will either be confirmed by a test certificate with specific test results or by test certificates issued by accredited test institutes, e.g. to DIN EN 10204 or DIN 55350-18.

The First Sample Inspection Report has to hold a declaration that the materials and their substances meet the legal requirements or the customer's requirements with regard to eco-friendliness, safety and recycling capabilities or it has to include a reference to the documentation in a material data base (e.g. IMDS).

The test protocols have to be submitted together with the First Samples. Unless agreed otherwise with our Quality Management, the actual values must allow to be referenced to the related numbered sample part by means of a table.

Unless requested otherwise by E-T-A, at least 5 random parts, in the event of multi-cavity tools at least one part per cavity have to be tested according to customer drawing and the actual values have to be recorded in the corresponding form. Special procedures in the event of a customer request require a previous agreement in writing.

Verification of process capabilities (CpK value  $\geq 1.33$ ) is done with the help of a few essential functionality measurements. These are stipulated by our QM or are especially marked in our drawing (KEY symbol). The CpK value is determined by at least 125 parts (25 spot checks with 5 parts each) which have been taken from a batch size representative for the process. In case of multi-cavity tools parts must be selected homogeneous from each cavity.

## Marking of First Samples

Each First Sample shipment has to be clearly marked with "Erstmuster / Initial Sample".

Parts out of multi-cavity tools have to be kept separately per cavity and have to be clearly marked.

## Evaluation and release of First Samples for series deliveries

After submittal of First Samples including the First Sample Inspection Report E-T-A can carry out additional tests in our sole discretion. E-T-A can also do cross-checks on the site of the supplier.

Based on the First Sample Inspection Reports and the tests carried out by us one of the following decisions will be taken:

- a) release
- b) reject
- c) release on condition

## 4. Documentation for E-T-A vendor parts

The release process has to be internally documented completely in compliance with VDA2 “Quality Assurance” or PPAP (Production Part Approval Process to QS9000).

Documents listed below and marked with “X” have to be submitted to E-T-A Quality Supplier Management (QML) together with a supply of initial samples.

### *Requirement*

1	Cover sheet for PPR/PA report (Part Submission Warrant)	X
2	Test and measurement reports (e.g. dimensions, function, material, appearance, surface, reliability, transportation, etc.)	X
3	Samples, quantity and/or batch size upon agreement (Sample Product)	X
4	Documents, e.g. customer drawings, CAD data, specifications, approved design changes etc. (Design Records)	
5	Design and development approvals of the supplier in the event of design responsibility	
6	Product and process FMEA (only necessary in case of design responsibility is at supplier site)	
7	Process flow chart covers all production and inspection processes (adjustment parameters with plastic parts, made out of E-T-A tools)	X
8	Production control plan or test plan Content at least our inspection specifications. Test equipment must be related to the measurements (a separate list is possible)	X
9	Test equipment capability study At least according to measurements with process capability request	
10	Confirmation of adherence to legal requirements regarding environmental (RoHS, Reach, etc.) safety and compliance	
11	Material data sheet per IMDS or as enclosure (Add in IMDS Data Base)	X

Independently of the above mentioned documents requested by E-T-A the supplier has to carry out a production process and product approval (PPAP) and to record the results. He has to prove meeting the requirements 1 through 11 of the above table. Related documents have to be made available upon request.

In case of re-submittal of samples documents must submit which are affected by the changes. If need by consulting our Quality Dept. (QML).

## 5. Evaluation of series process (production trial run)

The supplier has to evaluate his serial process on his own responsibility. In some cases it may be required to verify in the presence of E-T-A.

This serves to determine

- whether the actual production process is capable of manufacturing products which meet the quality requirements by using the guaranteed/offered tools and manufacturing capacity for a stipulated period of time
- whether the actual production process is in accordance with the production and test plan.

In order to account for the planned performance, the entire production tools or the production means on site have to be in operation in full capacity by simultaneously using the regular staff and all supporting systems.

Date and scope of the evaluation will be agreed between supplier and E-T-A.

The supplier is responsible for preparation and execution with the collaboration of and subsequent evaluation by E-T-A.