

ZOLLERN

Solid metals. Fine solutions.

Business Area Drive Technology

Guideline for production process and product approval

For suppliers of Zollern Drive Technology





Contents

1	Purpose of the production process and product release PPF	3
2	Scope	3
3	Request for initial samples.....	3
4	Initial sample documentation.....	3
5	Archiving	4
6	Submission levels	4
7	Initial sample.....	5
8	Delivery and labeling of initial samples.....	5
9	Protection of special characteristics	5
10	Requalification	5
11	Initial sample approval	6
12	Applicable documents.....	6
13	Change history.....	6

1 Purpose of the production process and product release PPF

The PPF process ensures that the products manufactured by the supplier meet the quality requirements specified by Zollern Drive Technology - hereinafter referred to as "ZAT". It is to be ensured that the contractor has correctly understood the requirements for the product. Manufacturing should be able to reliably manufacture the product in the required quantity in accordance with the requirements.

2 Scope

This guideline applies to all suppliers of the ZOLLERN drive technology in conjunction with the applicable order and delivery specification (TL, TS).

3 Request for initial samples

Initial samples can be requested from ZAT from:

- New parts
- Product and process changes
- Model changes (for cast parts)
- New suppliers
- After quality-related delivery blocks
- Model shift to another foundry
- The last casting was more than 2 years ago for parts of casting class A and B or 3 years for parts of casting class C

Generally excluded from the initial sample process are:

- Customer Service components
- Castings with styrofoam model

The supplier always has the duty to notify changes / adjustments before delivery.

This includes:

- Relocation of production
- Changes to the production process
- Change of sub-suppliers
- Model changes / adjustments (for cast parts)
- After rebuilding or extensive maintenance of machines or tools
- If production facilities have been shut down for 12 months or more

4 Initial sample documentation

The documentation of the initial samples is to be carried out based on the currently valid PPA report according to VDA.

A stamped, coded drawing is to be made of the component, in which each dimension is provided with a number. In the test result sheet, the specific actual dimensions of the initial sample must then be listed for each nominal dimension of the coding drawing.

The initial sample documentation must be delivered to the email address EMPB.1400@zollern.com at the same time as the initial sample. The Zollern order number and the material number must be listed in the subject of the email. Initial samples without initial sample documentation cannot be processed and can lead to a complaint that negatively affects the supplier evaluation. If an acceptance is nevertheless necessary due to scheduling reasons, the QS office is obliged to draw up a minimum of documentation itself. The supplier will be charged for this. In the case of a re-sampling, the complaint number that requested the re-sampling must be indicated on the EMPB cover sheet.

5 Archiving

All test and measurement data of sample parts are to be archived by the supplier so that they can be requested by ZAT if required. The archiving period is 10 years.

6 Submission levels

The submission level determines which documents, records and samples of ZOLLERN Drive Technology have to be transmitted for the production process and product approval. For deliveries to ZOLLERN Drive Technology, the submission level generally applies, which is specified in the order text.

Item	Requirement	Submission level			
		0	1	2	3
1.1	Dimensional check, geometry, surface quality, hardness (if indicated on the drawing), weight	A	V	V	V
1.3	Material properties (chemical analysis, tensile strength, elongation, yield strength, degree of purity, grain size, ...)	A	V	V	V
1.7	Appearance check Photo documentation of the component (with cover sheet sampling)	V			
1.10	Reliability tests (Attempts, life test, ...) -> listed in the order text				V
2	Sample component (quantity according to order)		V	V	V
3	Technical specifications Calculations (load capacity, service life, ...) -> listed in the order text				V
4	FAI cover sheet (according to VDA current edition)	V	V	V	V
10	Process flow diagram (Manufacturing and testing steps)			V	V
11	Control plan (QM plan, control plan)		A	V	V
13	Proof to secure special features		A	V	V
14	Test equipment list			V	V
21	PPF status supply chain (e.g. casting approval for in-house procurement)		A	V	V
23	List of all subcontractors used with the assignment to the part and the process				V

V	Submission to ZOLLERN Drive Technology and archiving by suppliers. Must be available at the request of ZOLLERN Drive Technology immediately.
A	Implementation, however storage and archiving at the supplier (must be presented for inspection at ZOLLERN Drive Technology's request.

7 Initial sample

An initial sample inspection is understood here as the verification of samples. The samples are checked, evaluated and the results documented against the agreed, specified requirements. Sampling for production process and product approval must be carried out with initial samples. Initial samples are completely under series conditions, with the planned machines, systems, operating and testing equipment and processing conditions, manufactured and tested products and materials. In general, a component must be documented as an initial sample component. Exceptions are agreed separately and communicated to the supplier in the order. Initial sample components are to be delivered to ZAT on the agreed date in accordance with the submission level specified in the order (see Chapter 6). Clear identification as a first sample is required. To identify the test characteristics, consecutive numbers must be used in the initial sample test report and in the current drawing to be supplied, which ZOLLERN has approved. Deviations from ZOLLERN Specifications, which were not determined during the process and product approval, entitle ZOLLERN to object to them at a later point in time. The forms for initial sampling can be obtained from the VDA reference addresses or from the QA department of ZOLLERN Drive Technology Herberlingen.

8 Delivery and labeling of initial samples

Sample shipments are always to be delivered separately from serial material. The individual initial samples must be numbered so that the assignment to the test documents is ensured. The initial samples are to be delivered with a separate delivery note item, which must contain the clear remark "initial sample" as well as the part number and description. The packaging unit of the sample parts must be clearly labeled. The marking must be clearly visible on the outside of every packaging / transport unit.

9 Protection of special characteristics

Safety features and significant features are product and process parameters which, in the event of deviations, can endanger the safety of the product, compliance with legal regulations, the function, the ability to assemble at the customer or subsequent manufacturing operations.

Security features (critical) <CC>

Security features are special product and process features with an impact on security, danger to life and limb, or compliance with legal regulations.

Functionally relevant characteristics (significant) <SC>

Significant, function-critical features are special product and process features with a significant influence on the function and the ability to assemble at the customer of a product. The significant characteristics were determined at Zollern for:

- Customer connection dimensions
- Critical characteristics specified by customers.
- Features that ensure the main function (bearing seats)

These features are marked on the component drawing and must be handled with special care. These dimensions must be documented both during production and during the final inspection.

10 Requalification

This mainly affects cast components. If the last casting was more than 2 years ago for parts of casting class A and B or 3 years for parts of casting class C, the supplier must carry out a new sample independently and without request and deliver it to ZAT for approval. This requirement is also anchored in ZAT-TL-010 under point 2.2.

11 Initial sample approval

The approval of the samples by ZAT does not release the supplier from responsibility for the quality of his products. It also does not constitute a delivery order. Sampling documents that have not been delivered in full or non-fulfillment of additional requirements (TL, TS) automatically lead to "release with conditions". The supplier will be charged for any additional work associated with the sampling.

Release level	Meaning / details
Release	Approval means that the component / material fulfills all client specifications and requirements. The supplier is now entitled to deliver the ordered production quantities of the part.
Release with condition(s)	Free with edition (s) means that the deviation on the first sample component is accepted once without reworking but must be corrected for the series. A re-sampling only must be carried out for the existing deviation.
Rejection	Rejection means that the initial samples do not meet the client's requirements. The deviations cannot be accepted. The supplier must take corrective measures immediately. A complete re-sampling of the entire component is required.

12 Applicable documents

- VDA Volume 2 Production process and product approval
- ZAT-TL-010 Procurement and acceptance conditions for raw parts made of cast iron with spheroidal graphite according to DIN EN 1563
- VDA PPF cover sheet, product-related test results, process-related and other documents

13 Chance history



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