Requirements for production process and product approval (PPA) for purchased parts

The term "production process and product approval - PPA" replaces "initial sampling - FAIR".

1. purpose

The PPA report (FAIR/PPAP) serves as proof that the supplier has understood the specifications and requirements defined by SICK in the order parts list and can fulfill them under series production conditions.

2. implementation and release

A PPA report (FAIR/PPAP) is requested by SICK by means of a purchase order and specification of a delivery date.

- for new parts,
- in the event of changes to purchased parts initiated by SICK (e.g.: changes to the drawing, the delivery specification, the material, etc.)
- or due to change notifications by the supplier.

Upon receipt of the purchase order, the supplier undertakes to carry out the PPA procedure (initial sampling) in accordance with these requirements. He is responsible for the correct and complete implementation.

The scope of the PPA process is based on the specifications of order BOM (bill of material) and any additional requirements from the advance quality planning agreement (AQP-A).

PPA samples (initial samples) are products that must be manufactured completely with standard production equipment and under standard conditions (systems, processes, tests, materials). They should be taken as a random sample from a representative production quantity and delivered in series packaging to the delivery address specified in the purchase order.

If product characteristics cannot be measured by the supplier himself, he must ensure that proof is provided by an accredited external measuring laboratory/service provider. Measurement reports from the measurement laboratory/service provider can be enclosed with the initial sample documents as test results.

The supplier is responsible for carrying out his sample test and for the correctness of the test and measurement results. If the supplier detects deviations regarding the fulfillment of SICK specifications, the causes must be determined and corrective measures initiated without being requested to do so.
PPA samples with specification/drawing deviations may not be presented without consultation with Sick Supplier Quality.

The final evaluation of the PPA report is carried out by SICK. After examination and, if necessary, further investigations, SICK issues approval. In the event of conditions or rejection, corrective measures and re-sampling are required without request.

The release of the product by SICK does not release the supplier from responsibility for the product quality and does not constitute a delivery order.

3. notification obligation and repetition of the PPA procedure (resampling)

The supplier is required to notify SICK of planned changes in the following cases. This notification must be made early enough so that SICK can evaluate the possible effects and determine the scope of the PPA procedure. Modified products may only be delivered after approval by SICK.

Notification is mandatory for

- Relocation of production or new production site concepts
- Change to the approved production process
- Use of new, modified or replacement tools
- After conversion or extensive maintenance of tools
- Before usage for series production after tool defect
- Changes to purchased parts or materials

4. requirements for the content of the PPA

The PPA report must be written in full in English or, if necessary, in German, signed and sent as a PDF file to the document mailbox **"deliverdoc.de@sick.de"**. An exact assignment to the PPA samples must be ensured. Before sending the documents, the supplier must check that they are complete. Incomplete documents may result in the PPA report being rejected.

Unless otherwise agreed for a purchased part, the supplier shall provide SICK with information in accordance with the following table:

		submission level	
	Requirements	1	2
1	Cover sheet for the PPA report (FAIR(PPAP)	R	R
2	Technical specifications (drawing, LSP, BOM...)	R	R
3	Proof of all specified criteria	R	R
4	Proof of materials used	R	R
5	Sample parts	R	R
6	Production control plan (control plan) (must include at least all inspection criteria)		R
7	Proof of process capability (inspection criteria)		R
8	List of inspection and test equipment		R
9	Measurement Systems Analysis (MSA)		R

R	The supplier must provide SICK with requested evidence
submission level 1	Technical specification does not include **inspection criteria**
submission level 2	Technical specification contains **inspection criteria**

5. notes on individual receivables from the table

1 Cover sheet for the PPA report (FAIR/PPAP)
The cover sheet must be completed in full and signed. The engineering change level must be entered in accordance with the SICK order BOM. The reason the PPA report must be clearly stated. The required submission level must be observed.

The supplier has the option of choosing between his own cover sheet, provided it complies with the VDA guidelines, or the cover sheet provided by SICK.

2 Technical specifications (drawings, LSP, BOM...)
Drawings with item numbers, delivery specifications and order BOM.
Only drawings approved by SICK may be used for the PPA procedure.

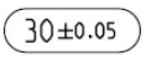
3 Evidence of all specified characteristics
Verification or measurement report with reference to the PPA samples for all requirements and drawing dimensions in accordance with the specifications of the SICK drawings, test specifications, delivery specifications and details in the order BOM.
Marking of those dimensions or properties in the PPA report that do not fulfill the SICK requirements
If relevant for the measurement results: Specification of the measuring points on the PPA sample parts or on a measuring point sketch.

4 Proof of materials used
Proof of the materials and substances specified in the BOM
(e.g. base materials, granulates, confirmation of coatings, etc.)

5 Sample parts
In principle, at least 3 PPA samples must be completely tested or measured and presented for submission. The PPA samples must be marked in such a way that they can be permanently assigned to the measurement results. In the case of tools with several cavities, the number of cavities must be entered on the PPA report and each cavity must be sampled individually. The marked PPA samples must be kept separate from other parts.

6 Production control plan (control plan/test plan)
The current production control plan for series production must be enclosed. This includes at least the inspection criteria, test intervals, test and measuring equipment, test quantity and test records specified by Sick. Further inspection criteria can be added by the supplier on his own responsibility

7 Proof of process capability (inspection criteria/inspection dimension)
Inspection criteria are marked on drawings or order documents with an extended circle:
In the course of initial sampling, the short-term capability verification for inspection criteria must be based on a single sample of at least 50 parts and the capability index must be verified ≥ 1.67.



Example: Inspection criteria without reference to a special characteristic

Example: Inspection criteria with reference to a special characteristic

If an inspection criteria is related to a special characteristic, this must be monitored and documented over the entire service life using a suitable procedure and the records must be archived (e.g. via SPC, manual control chart, etc.).

The archiving period of the records is 30 years for inspection criteria with reference to a critical characteristic.

8 List of inspection and test equipment

A list of the test and inspection equipment used for the production process and product release must be enclosed. The suitability of the test and inspection equipment used must be guaranteed.

9 Measurement Systems Analysis (MSA)

Proof of suitability must be provided on request. Standard test equipment is exempt from this requirement. As a guideline, the measurement and test equipment uncertainty should not exceed 10% of the smallest permissible tolerance of the measurement and test criteria.

6. approved deviation list for tool-related parts

If deviations are identified by the supplier as part of the PPA procedure, these must be reported to SICK (Supplier Quality department) using the "Approved deviation list" form before the PPA report is submitted.

Acceptable deviations are approved by SICK using this form and must be attached to the PPA report. Unacceptable deviations lead to corrective measures and resubmission of the PPA report (resampling).
Non-approved deviations or missing documented approvals for deviating characteristics lead to the rejection of the PPA procedure.

7. labeling of the PPA samples

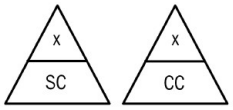
The PPA samples must be labeled clearly, assignably and permanently. This can be done using tags, labels or similar. The following minimum information must be recorded when labeling the PPA samples:

- SICK material number
- Material description
- Supplier
- Engineering change level/index
- Date of sampling
- Cavities/mold details (if not visible on component)

8. procedure for special characteristics

Special characteristics are product or process features that can have an impact on the functional safety, compliance with official regulations, function, performance, fit, appearance or further processing of the product. At SICK, these are referred to as Significant or Critical Characteristics.

Significant or critical features are marked in SICK documents with the following symbols:



X Consecutive number
SC Significant characteristic
CC Critical characteristic

For products with critical characteristics, each delivery must be accompanied by a declaration of conformity in accordance with ISO/IEC 17050-1, in which compliance with the critical characteristics for the delivered products is confirmed.

EX (Explosion) features fall into the category of critical features at SICK. For EX characteristics, the supplier must enclose a declaration of conformity with each delivery if a template for the declaration of conformity has been transmitted via the Sick order BOM.

9 Sick order BOM (bill of materials)

SICK products, which are procured based on SICK design specifications, are defined in the order BOM with material number and material short text. Within the BOM the applicable documents such as the drawing, the test specification, the delivery/packaging instructions and basic materials (granulates, metal alloys, coating instructions, sub-components to be used, individual dimensions in the case of generic drawings, etc.) are listed.

Unless otherwise agreed, all specifications from the order BOM and the applicable documents must be verified in the PPA procedure. In the case of specifications for the use of certain basic or raw materials, this means confirmation that these materials and any specified manufacturers have been used.

Ownership of tools:
if an "Injection molding tools order specification" was transmitted via the SICK BOM,
proof must be provided in the PPA report that the SICK ownership plate has been attached to the tool.
This ownership plate is provided to the supplier by SICK.

Documents and materials within the order BOM (drawings, specifications, etc.) may have a different engineering change level than that of the purchase order. The change status of the purchase order must always be referenced on the cover sheet of the PPA report.

Applicable documents

Template "Cover sheet for the PPA report (FAIR cover sheet)"

Template "Approved deviation list for tool-related purchased parts"

If required, the templates listed as applicable documents can be downloaded from the SICK homepage (www.sick.com→ About SICK→ Company→ Purchasing).