

Initial Sample Inspection Report (ISIR): documenting the initial sample inspection in a traceable manner

The Initial Sample Inspection Report (ISIR) is the documented evidence of an initial sample inspection, with which a supplier demonstrates that a newly developed or modified part meets the agreed specifications. For technical buyers, the ISIR is a central approval document before the start of series supply. The article explains the structure, process, criteria and typical pitfalls of initial sample documentation.

Key facts

- The ISIR documents the complete inspection of a first sample against all drawing and contractual requirements.
- It is usually a prerequisite for the series production release of a new part or process.
- Formally, it often follows standards such as PPAP (automotive) or VDA volumes; the scope is agreed on a project-specific basis.
- Core content includes measurement results, material and hardness testing, material certificates and evidence of the processes used.
- Without a positive initial sample approval, series supply should not be released; exceptions require a documented approval process.
- In the event of changes to drawing, process or location, a requalification with an updated ISIR is generally required.

Definition: Initial Sample Inspection Report (ISIR)

The ISIR is the summarised inspection report for the initial sample inspection, in which a supplier demonstrates that the first part produced of a new or modified product meets all agreed requirements. It forms the basis for the customer's decision to release the supplier and the part for series production.

Delineation from other approval documents

The ISIR is part of a larger approval package. In the automotive industry it is frequently part of the Production Part Approval Process (PPAP) documentation, while in mechanical engineering companies refer to VDA guidelines or customer-specific initial sample inspection requirements. The ISIR itself looks at the product; it should be supplemented by process evidence such as capability studies and measurement system capability.

Typical contents of the ISIR

A complete ISIR typically contains: a dimensional inspection of all drawing-relevant characteristics with actual and nominal values, material and hardness evidence, material certificates (e.g. in accordance with EN 10204), evidence relating to surfaces, heat treatment and, where applicable, sealing tests, as

well as information on inspection plans and the measuring equipment used. In practice, evidence of measurement system capability and the marking of the inspected sample are also part of it.

Methods and procedure for the initial sample inspection

The initial sample inspection follows a structured process from requirement definition to the release decision. Clear agreements in the framework contract or in the drawing documents avoid later disputes over scope and responsibilities during the project.

Preparation and requirement definition

The commissioning party defines in the requirement specification or drawing which characteristics must be inspected, which inspection methods apply and in what form the ISIR is to be submitted. Aligning the relevant characteristics is important: safety- or function-critical characteristics are designated as special characteristics and are subject to stricter requirements, often with statistical process capability evidence.

Execution and assessment

The supplier produces samples under future series conditions – a central quality principle. The measurement results are fully documented, deviations are assessed and supported by corrective actions. The customer reviews the ISIR for completeness and plausibility, supplemented where necessary by its own spot-check inspection or an on-site visit at the supplier.

Approval and management of the documentation

Following a positive assessment, formal series release takes place, often with an approval note in the ISIR and sample marking of the approved status. The documentation should be archived in an audit-proof manner and linked to the drawing revision; established master data governance processes help to keep master data and approval status consistent.

Key KPIs and metrics relating to the ISIR

The quality of the sample inspection process can be measured. Typical key figures relate to throughput times, first-time approval rate and rework; they are also suitable as inputs to a supplier rating model.

Process key figures

Frequently used key figures are the supplier's submission deadline compliance, the duration of internal report review and the first-time approval rate without rework. In practice, structured suppliers achieve first-time approval rates significantly above 90 per cent; repeated rework requests indicate weaknesses in quality management.

Product-related key figures

Also relevant are the number of deviations identified per ISIR, the process capability for special characteristics (usually Cpk values, which should reach 1.33 or higher depending on the agreement) and the rate of subsequent series problems attributable to an incomplete initial sample inspection. These key figures are often incorporated into the supplier audit programme and supplier evaluations.

Risks and controls in the ISIR process

An ISIR that is formally positive but incomplete in content is an underestimated risk. Without critical

review, a series with hidden defects enters the launch phase, later causing expensive sorting actions or failures.

Typical sources of error

Common problems: measurement values are only partially documented, measurement methods deviate from the drawing specification, samples are not produced under series conditions, or the ISIR refers to an outdated drawing revision. Outdated drawings circulating among stakeholders – comparable to the risk of an obsolete stock of documents – also lead to incorrect approvals.

Controls and countermeasures

Effective controls include a checklist for completeness review, designation of responsible inspectors on both sides, the four-eyes principle for approvals, and random verification through own measurements. For critical parts, an on-site initial sample inspection at the supplier is recommended. In the event of rejection, a defined contingency plan should take effect, governing alternative sourcing or launch support.

Link to supplier management

ISIR results should be systematically evaluated and incorporated into the supplier strategy. Repeated weaknesses in sample documentation argue against shifting strategic parts to the supplier in question and can give rise to audits. Conversely, a clean sample inspection process documents a supplier's process maturity and facilitates later qualifications.

Current developments: digitalisation and regulatory influences

The sample inspection process is increasingly being digitalised: inspection reports are exchanged via supplier portals or digital quality management systems instead of by PDF via email. At the same time, requirements arising from evidence and reporting obligations are growing.

Digital inspection reports and data integration

Digital ISIR formats enable automated plausibility checks, for example comparing measurement values with tolerances from CAD data, and improve traceability between drawing status, sample and approval. In integrated procure-to-pay (P2P) processes, series release can be stored as a gate in the purchasing system, so that order approvals are blocked without sample approval.

Sustainability and regulatory evidence

Initial sample requests are increasingly being extended to include evidence that goes beyond classic product quality. In practice, this includes data on the Product Carbon Footprint (PCF) or information that will later feed into reporting under the Corporate Sustainability Reporting Directive (CSRD). Buyers are well advised to include such requirements in initial sample inspection agreements at an early stage rather than requesting them retrospectively.

Typical metrics

First-time approval rate: > 90 %

Proportion of ISIRs approved without rework; structured suppliers perform significantly above this level

Submission deadline compliance: > 95 %

Proportion of ISIRs submitted within the agreed timeframe after sample production

Process capability for special characteristics: Cpk $\geq$ 1.33

Common guideline value depending on industry standard and agreement

ISIR review time: < 10 working days

Typical guideline value for internal review and approval of the report by the customer

Practical example

A medium-sized mechanical engineering company develops a new gearbox housing and commissions a foundry supplier. The buyer anchors the ISIR requirements in the framework agreement, including material certificates and Cpk evidence for two special characteristics. The supplier submits the ISIR nine days after sample production; the inspection reveals two deviations on a dimension that lies just outside the tolerance.

- Agreeing the scope and deadlines of the ISIR in the framework agreement before placing the order
- Critical review of the report by quality and engineering jointly, not merely formal acceptance
- Requesting a corrective action with adjustment of casting parameters and a renewed partial sample submission
- Documenting the approval, including the drawing revision, in the part master record for later requalification actions

Conclusion

The ISIR is more than a form: it is the central control instrument for ensuring that a part has truly reached series maturity. The effort is worthwhile, because errors overlooked here cost a multiple later in the series. What matters are clear requirements before the order is placed, samples under genuine series conditions and a critical, not merely formal, review of the report. Those who systematically evaluate ISIR results also gain valuable insights for supplier development. Digitalised inspection processes and extended evidence, for example on the carbon footprint, make the topic all the more current.

Frequently asked questions

What is an ISIR (Initial Sample Inspection Report)?

The ISIR is the inspection report for the initial sample inspection, with which a supplier demonstrates that the first sample of a part meets all drawing and contractual requirements. It contains measurement results, material certificates and inspection methods. Based on the ISIR, the customer decides on release for series production.

What is the difference between ISIR and PPAP?

The ISIR documents only the product inspection of the first sample, whereas PPAP is a more comprehensive approval package that also includes process evidence such as capability studies, control plan recommendations and test plans. The ISIR is usually part of the PPAP documentation. The required scope is agreed individually between customer and supplier.

When is an ISIR required?

Typically for new parts, after drawing or material changes, after process or location changes by the supplier, and after a longer supply interruption. A new initial sample inspection is also standard practice when changing suppliers for an existing part. The specific triggers should be defined contractually.

Who prepares the ISIR – supplier or customer?

The ISIR is prepared by the supplier, as they carry out the measurements on the sample and document the results. The customer reviews the report for completeness and plausibility and grants approval. For critical parts, the customer often verifies the results by performing its own spot-check measurements.

How long must an ISIR be retained?

The retention period is agreed individually and depends, among other things, on product liability risks and customer-specific requirements; in safety-relevant industries, several years or the lifetime of the product are common. Legally decisive are commercial and tax law retention obligations as well as product-specific requirements, which should be reviewed on a case-by-case basis.

What happens in the event of a deviation in the ISIR?

Deviations are assessed and the supplier must initiate and demonstrate corrective actions. Depending on severity, a new sample production and submission of an updated ISIR may follow. Series release should only be granted once all deviations have been fully eliminated; in exceptional cases, a documented special approval with a risk assessment is possible.