Quality inspection: ensuring that delivered components meet the agreed requirements

Quality inspection comprises all systematic measures by which procurement organisations verify that incoming goods, intermediate products and services meet the agreed specifications. It is the link between supplier performance and production capability and ensures that defects never enter the value chain in the first place. For technical buyers, it is a central steering instrument for supplier development and risk mitigation.

As of October 2026 · amplifa-marketplace.ai/en/glossary/qualitaetspruefung

Key facts at a glance

01 Quality inspection comprises incoming inspection, accompanying process control and final inspection, depending on risk and vertical integration.

02 Inspection type, inspection scope and the filing of evidence are typically specified in the inspection plan or inspection requirements in drawings and requirement specifications.

03 In practice, inspection is divided into 100% inspection, sampling (AQL) and skip-lot inspection for proven suppliers.

04 Metrics such as PPM, First Pass Yield and complaint rate make supplier performance measurable and form the basis for the supplier award.

05 Certificates such as the declaration of conformity or material test certificates do not replace the substantive inspection; they document it.

06 The quality assurance agreement (QAA) governs inspection scope, complaint channels and cost responsibility between customer and supplier.

Definition: quality inspection

Quality inspection is the systematic assessment of whether a product or service meets the agreed requirements. It involves comparing actual and target properties based on measurable criteria such as dimensions, material properties, surfaces or documentation. In procurement, it focuses primarily on

incoming and goods receipt inspection, but is conceptually part of the entire product life cycle management.

Distinction from quality assurance and quality management

Quality inspection is an operational conformity assessment activity. Quality assurance additionally encompasses preventive measures such as process capability analyses and sample inspections, while quality management forms the overarching steering system with guiding principles, processes and documentation. In procurement this results in a clear division of roles: the buyer agrees the inspection scope and contractual basis, the quality department carries out the inspection and evaluates the results.

Legal and contractual foundations

The contractual basis comprises drawings, requirement specifications, standards such as DIN EN ISO 9001 or IATF 16949 and industry-specific regulations. A quality assurance agreement governs, among other things, inspection types, scrap arrangements, complaint deadlines and cost absorption. For material test certificates under DIN EN 10204 (e.g. 3.1), the following applies: the certificate documents properties but does not exempt from spot-check incoming control. Legal details such as warranty and burden of proof should be examined legally on a case-by-case basis.

Methods and procedures in quality assurance practice

The procedure for quality inspection typically follows a standardised process: delivery, identification, inspection according to the inspection plan, documentation and release or blocking. The choice of inspection method depends on risk, volumes and vertical integration. Where there is a high level of outsourcing and critical components, close-meshed inspection is worthwhile; for proven standard parts, a lean approach is appropriate.

Types of inspection at a glance

Incoming inspection checks delivered goods for completeness, identity and conformity. Process inspection accompanies production at the supplier, for example in the context of audits or first article inspections according to PPAP. Final inspection takes place before delivery and is frequently evidenced by inspection certificates. For special characteristics – i.e. safety- or regulation-relevant characteristics – 100% inspection with documentation is common practice.

- Incoming inspection: visual, dimensional and documentation checks at goods receipt
- First article inspection (FAI/PPAP): approval before start of series production
- Process audit: on-site assessment of the supplier's production process
- Representative sample according to AQL plans for large quantities

Sampling inspection and inspection plans

For large quantities, sampling inspection according to AQL (Acceptable Quality Limit) is frequently

used. The inspection plan specifies which characteristics are inspected, with which measuring instrument, at what frequency and with what level of documentation. A good inspection plan reduces inspection costs without taking on risks – for special characteristics in particular, the rule is: no compromises on inspection intensity.

Digital inspection processes and documentation

Modern ERP systems integrate quality inspection into the goods receipt process: inspection lots, digital measurement protocols and automatic stock blocks are increasingly replacing paper. Customs clearance also benefits when inspection and origin evidence is available digitally. Integration with the supplier portal enables suppliers to link inspection certificates and declarations of conformity directly with the delivery note item.

Key KPIs of quality inspection in procurement

Quality inspection is only as valuable as its measurability. Metrics make systematic weaknesses visible, support the supplier meeting and form the basis for performance-related evaluations such as the supplier award. Typical metrics from practice are listed below.

Delivery-specific quality metrics

The complaint rate in relation to deliveries or part numbers shows how reliably a supplier delivers conforming goods. The First Pass Yield describes the proportion of units that pass inspection without rework. For series parts, measurement is frequently in parts per million (ppm) – here, values of a few hundred ppm are typical depending on industry and component.

Process and cost metrics

Inspection intensity (proportion of items inspected) and inspection costs per unit show the effort of your own quality assurance. Scrap and rework costs, captured within 8D reports or cost-of-poor-quality analyses, reveal the financial impact of poor quality. For the buyer, it is also worth considering procurement ROI: every complaint avoided saves indirect costs such as line downtime, logistics expense and reputational damage.

Risks and controls in quality inspection

Defects in quality assurance often only take effect late and expensively – for example as a production line stoppage, field failure or recourse claim. Structured risk management around quality inspection minimises these dangers. The controls should be designed on a risk basis and process-oriented.

Typical risk areas

The most common risks include inadequate documentation, unclear specifications in drawings, missing first article approvals for changes and dependencies on sub-suppliers that the main supplier does not disclose. Where partial processes are outsourced, there is also a risk that quality agreements are not

passed on to sub-suppliers.

Control instruments in procurement

Supplier audits, quality agreements and regular supplier meetings with metrics reviews are proven steering instruments. An escalating dunning process for repeated complaints, a performance bond for critical projects or a defined credit note procedure (ERS) as a discount deduction for scrap create additional incentives. For new suppliers, a structured supplier longlist with pre-qualification helps identify risks early.

Complaint management and the 8D report

The 8D report is the industry-standard tool for structured root cause analysis: from problem description through root cause analysis to the effectiveness verification of corrective actions. In procurement, it is important that complaint costs (inspection effort, logistics, replacement delivery) remain contractually with the party at fault and are settled promptly via the credit note procedure or a retention of title/security agreement.

Current developments: digitalisation and sustainability broaden the concept of quality

The concept of quality in procurement is broadening: alongside classic product characteristics, sustainability, delivery metrics and digital process integration are coming into focus. This confronts buyers with new inspection tasks – while also offering efficiency potential.

Sustainability as an inspection characteristic

Requirements such as the recyclability of packaging or CO figures for components are increasingly becoming part of quality inspection. Buyers define corresponding criteria in requirement specifications and supplier evaluation. This requires new forms of evidence, as conventional measuring instruments are of no help here – certificates, audits and data formats such as material passport data move to the centre.

AI and data integration

Image recognition for automated visual inspection, AI-supported pattern recognition in measurement data and predictive quality alerts are changing the practice of incoming inspection. At the same time, digital supplier portals facilitate the exchange of inspection certificates, declarations of conformity and complaint data. When selecting systems, buyers should focus on interface capability and standard compliance rather than committing to individual vendors.

Typical metrics

Metric	Typical value
Complaint rate	< 1% of deliveries *Customary target value for proven series suppliers; varies by industry.*
Defect rate (PPM)	< 500 ppm *Depends on industry and component; considerably stricter values are usual in the automotive industry.*
First Pass Yield	> 98% *Proportion of units that pass inspection without rework.*
Inspection intensity	risk-based, typically 10–100% *Depends on component criticality and supplier process capability.*

Practical example

A medium-sized mechanical engineering company with a high level of vertical integration at its German home plant sourced precision components from a new supplier in Eastern Europe. Following repeated dimensional deviations on a gearbox assembly with special characteristics, the company carried out a structured realignment of its quality inspection.

- Inspection plan revised: 100% inspection of special characteristics, AQL sampling for standard characteristics
- Quality assurance agreement added with complaint deadlines and cost absorption for scrap and rework
- First article inspection to PPAP before restart, accompanied by an on-site process audit
- Monthly supplier meeting with PPM figures and 8D reports as a binding agenda

Conclusion

In technical procurement, quality inspection is far more than a goods receipt formality: it safeguards your own production capability, protects against recourse and liability risks and provides the data basis for fact-based supplier management. Those who govern inspection scope, metrics and complaint channels cleanly in contracts reduce both dispute potential and volatility costs. Digitalisation and sustainability requirements expand the inspection mandate while also making it more efficient. What is decisive is a risk-based approach that monitors critical characteristics closely and inspects standard parts leanly. This turns quality inspection from a cost factor into an active contribution to delivery capability and margin protection.

Frequently asked questions

? What is quality inspection in procurement?

Quality inspection is the systematic check of whether delivered goods and services meet the agreed specifications. It typically comprises incoming inspection, first article inspection and accompanying process audits at the supplier. In procurement, it also serves as a data source for supplier evaluation and as contractual protection in the event of complaints.

? What types of inspection are there in incoming goods control?

Common methods are 100% inspection, sampling inspection according to AQL plans and skip-lot inspection for proven suppliers. For safety-relevant special characteristics, complete inspection with documentation is frequently mandatory. The inspection plan specifies, for each characteristic, which measuring instrument, what scope and what level of documentation applies.

? Does an inspection certificate replace incoming inspection?

No – an inspection certificate under DIN EN 10204, such as a 3.1 certificate, documents properties but does not exempt you from spot checks. In practice, the certificate is reconciled with the goods receipt item and the goods are at least visually and quantitatively checked. For critical components, additional measurements are carried out.

? What is an 8D report and when is it used?

The 8D report is a standardised format for structured complaint handling with eight disciplines, from problem description through to effectiveness verification. It is typically used in cases of significant or repeated quality deviations. For buyers, it is an important instrument for providing verifiable evidence that the supplier has eliminated the root cause.

? How much inspection effort is economically sensible?

Inspection effort should be scaled on a risk basis: tight for critical characteristics, lean for standard parts. In practice, the scope is guided by the consequences of defects (downtime costs, liability risk), the supplier's process capability and the quantity involved. Regularly reviewing inspection plans prevents historically justified inspections from permanently causing unnecessary costs.

? What role does quality inspection play in the supplier selection process?

In new supplier evaluation – for example starting from a supplier longlist – process audits and first article inspections are key approval instruments. Serial production approval typically only follows once qualification has been passed. Even afterwards, quality metrics such as PPM remain a central criterion in regular supplier evaluation.

Find the right suppliers on Amplifa

Verified industrial suppliers in Germany, Austria and Switzerland. Describe your requirement and receive comparable offers.

amplifa-marketplace.ai