

Tool release: a controlled starting point for series production and procurement

Tool release is the formal confirmation by the customer or purchasing department that a tool is suitable for series production and may be used. It usually follows the first sample inspection (EMPB) and defines the point from which parts from the released tool may be delivered. For buyers, it is an important control instrument to avoid quality risks, additional costs and delivery delays caused by unverified tools.

Key facts

- Tool release is the formal acceptance of a tool for series production, usually after a successful first sample inspection run.
- It bindingly regulates whether and from when parts from the tool may be delivered.
- In practice, release is documented by measurement reports, sample inspections and often a quality assurance agreement.
- A distinction is typically made between full release, conditional release and blocking.
- Release is part of risk management in procurement and forms the basis for supplier evaluation and schedule monitoring.
- Changes to a released tool are not permitted without a new release and accompanying change management.

Definition: tool release

Tool release denotes the formal consent of the purchaser to use a specific tool for series production. It is the result of an assessment of whether the tool reproducibly produces the agreed part characteristics. Only with release may workpieces from this tool be regularly delivered and invoiced.

Distinction from first sample inspection (EMPB)

The first sample inspection (EMPB) documents that a tool achieves the required characteristics; tool release is the permission for series use built upon it. In practice the two steps coincide when the sample run is successful. They are cleanly separated in legal terms when release is only granted after a pilot series or capacity check. For buyers, a clear separation is worthwhile because it defines the point from which regular call-off orders may be fulfilled.

Legal classification

Whether the tool is owned by the purchaser or the supplier must be regulated contractually and affects release, maintenance and return. Tool contracts, the framework delivery schedule or the quality assurance agreement should specify who may request changes and what documentation obligations apply. The specific arrangement must be reviewed legally on a case-by-case basis. As a general rule: without documented release, the purchaser bears a considerable quality risk.

Methods and procedure for tool release

The release process usually follows a fixed sequence of sample production, inspection, evaluation and decision. It should be bindingly anchored in the procurement and quality process. A checklist covering all inspection criteria and evidence has proven effective.

Typical process in practice

After toolmaking or tool modification, the supplier produces samples from the tool and submits measurement reports. The purchaser inspects the samples, often as part of the EMPB, and evaluates form, position and surface tolerances as well as material characteristics. If the result is positive, the responsible department grants release, often with reference to the quality assurance agreement. The release is documented and communicated to all affected parties, in particular to inventory planning and goods receipt.

Release inspection criteria

Typically inspected are dimensional accuracy over multiple cycles, part functionality, cycle time, maintenance condition and tool identifiability. Evidence of reproducibility is also important: individual good parts are not sufficient; what matters is stability over a representative quantity. For customer-owned tools, the purchaser additionally checks wear condition and storage location to avoid later inventory discrepancies in the tool stock.

Types of release

Three levels have become established in practice. Full release permits unrestricted series production. Conditional release permits delivery under defined conditions, such as 100% inspection or reduced batch size, until a defect is rectified. Blocking prevents any supply from the tool; quantities already scheduled on call-off must then be adjusted via a change order.

Key KPIs for tool release

The quality of the release process can be measured. Suitable KPIs show whether tools are released on schedule and whether released production runs stably. They are frequently incorporated into supplier evaluation.

Lead time and schedule adherence

Essential is the time from toolmaking or tool change request to release; in practice, depending on complexity, several weeks to months are allowed. Adherence to release deadlines can be tracked with schedule monitoring, comparable to monitoring delivery time variability in ongoing operations. Deviations should become visible early in bottleneck analysis before call-off orders are jeopardised.

First-release rate and rework

The first-release rate describes the proportion of tools released without rework. Frequent rework indicates inadequate specification or a lack of coordination with the toolmaker. In addition, the scrap and rework rates in the first series batches are an early indicator: if they rise after release, the inspection depth in the sample phase was insufficient.

Evidence and documentation quality

A fully documented release process reduces disputes and accelerates later inspections, for example

during customer audits. Key metrics are the proportion of tools with a complete measurement report, current drawing revision and documented storage allocation. An audit checklist helps to systematically verify completeness.

Risks and controls: tool release in risk management

Missing or rushed tool releases are among the more common causes of quality problems during series ramp-up. They can be managed through clear responsibilities, documented criteria and effective change control. Tool release is thus a building block of risk management in procurement.

Typical risks

Risks arise primarily when samples are only spot-checked, responsibilities are unclear, or tools enter series production without release. Further dangers are uncontrolled tool changes, lack of spare parts provision for wear parts and unclear tool service life. When released tools are used at multiple production sites, the inspection effort grows; here a sourcing wave plan helps to coordinate release and ramp-up dates across projects.

Change control after release

Every change to a released tool requires a formal change request, comparable to a change order in the design department. The supplier may not make corrections on its own initiative, not even seemingly uncritical ones, because even minor interventions can alter part properties. After every change, a further sample inspection follows and, depending on the scope, a new partial or full release. Responsiveness to change requests should be included as a criterion in supplier evaluation.

Control instruments for purchasing

Purchasing anchors the release requirement bindingly in the quality assurance agreement and links it to the framework delivery schedule: no series call-offs without a release note. Goods receipt and inventory planning receive the information so that no parts from blocked tools are accepted. For awards, sound preparation via bidder questions and a well-maintained bidder register also helps, because this clarifies tool condition and sample inspection obligations before the award.

Current developments: digitalisation and supply chain requirements

Tool releases are increasingly documented digitally, from measurement data exchange to the release workflow in the supplier portal. At the same time, supply chain requirements and longer lead times increase the need to make tool statuses transparent across locations.

Digital release workflows

Digital systems manage measurement reports, inspection instructions and release status centrally, creating a complete history per tool. This speeds up decisions and makes release statuses retrievable worldwide. Monitoring of tool wear via sensor data or counter readings is also becoming feasible, so that preventive maintenance protects against unplanned downtime. What remains important is that digital releases carry the same binding force as signed documents; the corresponding provision belongs in the contracts.

Evidence and due diligence obligations in the supply chain

Legal requirements on the supply chain, such as those arising from the German Supply Chain Due Diligence Act, concern mainly labour and human rights as well as environmental matters. They do not change the quality criteria of tool release but increase the documentation requirements across the entire tool life cycle. Particularly for customer-owned tools at subcontractors, the purchaser should be able to demonstrate where tools are located and under what conditions they are operated. The specific obligations must be assessed individually.

Cost aspects over the life cycle

Tool costs are an essential component of total landed cost (TLC), especially for injection moulding and die casting parts with high tool investments. Release documentation contributes to cost transparency because it records usage condition, maintenance history and remaining service life. In logistics handling, for example on a CPT basis with transport by air waybill (AWB), delayed releases additionally cause extra logistics costs through air freight instead of sea freight. Early, reliable release dates reduce such escalation costs.

Typical metrics

First-release rate: typically > 90%

Proportion of tools without rework; target for established suppliers often > 95%

Lead time to release: guideline: 4–12 weeks

depending on tool complexity; record deviations in schedule monitoring

Rework rate for initial series batches: typically < 2%

early indicator of sufficient inspection depth in the sample phase

Documentation completeness: > 98%

Proportion of tools with complete measurement report and proof of release

Practical example

A medium-sized mechanical engineering company awards a complex injection moulding tool to a new toolmaker. After the first sample inspection (EMPB), a deviation is identified on a functional dimension; the parts would be usable within tolerance, but dimensional stability over the tool's service life is questionable. Instead of a conditional release with permanent 100% inspection, the buyer opts for a correction to the tool before the start of series production.

- Formal blocking of series deliveries until rectification, with a change order to the supplier and a new sample inspection date
- Adjustment of the annual call-off and framework delivery schedule dates to avoid shortfalls during ramp-up
- Linking release status to goods receipt and call-off orders so that no parts from a blocked tool are accepted
- Inclusion of the first-release rate and response time to change requests in supplier evaluation

Conclusion

Tool release is the binding threshold between the sample phase and series production. It protects buyers against quality risks, unexpected costs and ramp-up delays when it is clearly defined,

documented and linked to call-off orders. What matters is a verifiable process, sound change control and consistent integration with inventory planning and goods receipt. Digitally documented releases facilitate audits and location oversight. Those who understand tool release as part of risk management demonstrably reduce ramp-up problems and create a solid basis for long-term supplier relationships.

Frequently asked questions

What is tool release?

Tool release is the formal confirmation by the purchaser that a tool is suitable for series production and may be used. From the point of release, parts from this tool may be delivered regularly. It usually follows a successful first sample inspection (EMPB) and is documented.

Difference between tool release and EMPB?

The EMPB (first sample inspection) demonstrates that the tool meets the required part characteristics. Tool release is the permission for series use based on this. In practice the two often coincide, but with complex ramp-ups the release is only granted after a pilot series.

Who grants tool release?

Responsibility usually lies with the customer's quality department in coordination with technical purchasing. Responsibility should be defined in the quality assurance agreement. What matters is that release is only granted by a named individual with drawing authority.

What does conditional tool release mean?

Under a conditional release, the tool may be used subject to defined conditions, such as 100% inspection or limited batch sizes. The conditions must be specified in writing and time-limited. Full release follows only after successful proof of correction.

May the supplier modify a released tool?

No, changes to a released tool require the purchaser's consent and a renewed release after sample inspection. This also applies to seemingly minor corrections. This should be bindingly regulated in tool contracts or the quality assurance agreement.

What happens if tool release is missing?

Parts from unreleased tools are formally not series parts and may lead to refusal of acceptance, returns or complaints. The purchaser also bears quality and warranty risks. In practice, release status is therefore consistently linked to goods receipt and call-off orders.