

Reorder Point: How to correctly calculate and control reorder point-based discontinuous planning

The reorder point is the inventory level at which a new order is triggered. It links demand planning and procurement and ensures that material is available before shortages stop production. For technical buyers, the reorder point is the central control instrument of discontinuous inventory planning. Those who calculate it systematically and update it regularly reduce inventory without jeopardising delivery reliability.

Key facts

- The reorder point marks the inventory level at which a replenishment order is triggered.
- The classic formula is: average demand multiplied by replenishment lead time plus safety stock.
- In practice, the ordering horizon ranges from a few days for C items to several months for imported items with long lead times.
- Incorrectly maintained master data, in particular lead times, is the most common cause of planning errors.
- The reorder point is closely related to the minimum stock level, but additionally takes account of demand during the replenishment lead time.
- Modern ERP and e-procurement systems calculate reorder points dynamically and can trigger orders automatically.

Definition: Reorder Point

The reorder point describes the stock level at which an order must be triggered with the supplier so that the material arrives before the inventory falls below the desired safety stock. It is thus the switching point between stock monitoring and the ordering process.

Distinction from minimum stock level and safety stock

The minimum stock level is often defined as the protection level under ideal delivery conditions, while the safety stock covers fluctuations in demand and delivery time. The reorder point comprises both elements plus the demand arising during the replenishment lead time. In practice, however, the terms are often used synonymously, which leads to misunderstandings in planning. It makes sense to clearly differentiate in the master data which value serves as the trigger criterion.

- Safety stock: buffer against demand and supply fluctuations
- Minimum stock level: alarm threshold, often identical to the safety stock
- Reorder point: trigger level, typically demand during lead time plus safety stock

Legal and process classification

The reorder point is initially an operational planning variable. However, it also has an effect on contractual commitments: where delivery schedules or purchase obligations are based on reorder point planning, the calculation methodology should be documented in the framework agreement. Transparent planning logic can also be relevant for audits and evidence in the context of the Supply Chain Due Diligence Act, because it shows how material risks are systematically managed.

Calculating the reorder point: methods and procedure

Reorder point calculation follows a simple basic logic, but its quality depends on the quality of the input data. Basic formula: $\text{reorder point} = \text{average demand per time unit} \times \text{replenishment lead time} + \text{safety stock}$.

Determining the input parameters

First, average demand must be determined, typically from a moving window of the past, adjusted for known project or seasonal demand. The replenishment lead time comprises order processing, delivery time and incoming goods inspection – not just the transport duration. For imports with CIF delivery terms, customs clearance and transport time are added. A sound demand analysis is the foundation of any sensible planning here.

- Evaluate demand history over 6 to 12 months and clean out outliers
- Record replenishment lead time including internal processing times, not just delivery time
- Quantify demand variability (standard deviation) for the safety stock calculation

Determining the safety stock

Two approaches have established themselves in practice: a simple rule of thumb in which the safety stock corresponds to a fixed share of lead time demand coverage, and the statistical method based on the service level. Here, the desired delivery readiness, frequently typically 95 to 99 per cent, is translated into stock via a safety factor. The more critical the material, the higher the service level applied. A bottleneck analysis helps decide which parts deserve high protection and which can manage with lean planning.

Discontinuous versus continuous reorder point method

With the continuous method, stock is checked after every withdrawal and the order is triggered as soon as the reorder point is reached. The discontinuous variant checks at fixed intervals, e.g. once a week, and must therefore factor in an additional review period. Continuous systems reduce safety stocks but require complete, gap-free stock data. Many ERP systems combine both approaches via fixed-date and reorder point logic.

Important KPIs for controlling reorder points

The reorder point only works if it is measurably monitored. Key figures show whether the parameters are realistic and whether planning is following demand.

Delivery reliability and inventory key figures

Internal delivery reliability, i.e. schedule adherence towards production, shows whether the reorder point is set correctly. On the inventory side, inventory coverage and inventory turnover are the benchmarks: high turnover indicates lean parameters, frequent stockouts indicate safety stocks calculated too tightly. Both key figures should be assessed together, as each on its own rewards opposite mis steering.

Data quality and process key figures

An often overlooked indicator is the currency of planning master data: how many items have verified lead times, and how old are the last reviews? The hit rate of automated order proposals and the proportion of manually overridden line items also show how far actual planning deviates from system logic. From a negotiation management perspective, it is worth monitoring how often special freight or premium terms become necessary because of short-notice reorder points – an indication of structural mis planning.

- Inventory coverage per material group in days
- Proportion of items with verified lead time in the material master
- Number of non-coverages and stockout reports per month
- Cost of unplanned express deliveries

Risks and controls when using the reorder point

The reorder point method is robust, but not self-healing. Typical risks arise from outdated parameters, lack of coordination with suppliers and insufficient protection of critical parts.

Master data and process risks

The most common error is unrealistic lead times in the material master, for example because a supplier has quietly extended its delivery times. This is where master data governance comes in: responsibilities, review cycles and change processes for planning data must be defined. In addition, incomplete order confirmation obligations can mean that delays only become apparent when stock has long fallen below the minimum level. A disciplinary instrument is the consistent expediting of open orders once promised dates are exceeded.

Supplier and market pressures

For imported or single-source items, statistical safety stock alone is rarely sufficient. A risk register for critical materials and a systematic assessment in the sourcing process help identify supply risks early and address them via second sources or buffer quantities. The tender question catalogue can be used to ask potential suppliers about delivery times, flexibility and information obligations as early as the selection stage. When deadlines are imminent, Available to Promise (ATP) is the relevant enquiry to obtain binding availability rather than nominal values.

- Review lead times and safety stocks at least annually
- Secure critical A items with supplier meetings and, if necessary, dual sourcing
- Actively phase out safety stocks for discontinued or replacement parts

Organisational controls

A clear separation of duties makes sense: parameter maintenance lies with one responsible party, release of exceptions with a second. Regular exception lists – e.g. items where the reorder point was breached several times in a row – create transparency about structural problems. Where there is a shortage of skilled staff or long replenishment lead times, a fixed procurement strategy per material class, agreed within a Supplier Day, can help.

Reorder point in ERP and e-procurement environments

In modern systems, the reorder point is not a static value but the result of planning logic that evaluates

demand, stock and orders in real time. Integration into e-procurement in purchasing turns the reorder point into an automated trigger for purchase requisitions and purchase orders.

Automated planning and standardisation

The higher the degree of standardisation of materials, the more easily reorder point planning can be automated: standard parts with stable demand are suitable for stock procurement and release procedures, custom parts usually are not. Automated systems can generate order proposals, book onto framework agreements and transmit order information electronically to the supplier. The prerequisite is consistent master data maintenance, otherwise automation merely reproduces errors systematically.

Integration into supplier and logistics processes

For suppliers, the reorder point is also a signal of collaboration: those who transparently communicate planning requirements and demand changes to their suppliers receive better delivery readiness and reliable commitments. In international procurement with differing delivery terms such as CIF or EXW, honest mapping of transport-related lead time is crucial. In addition, consignment warehouses or VMI models (Vendor Managed Inventory) are alternatives in which the supplier itself plans and the reorder point is shifted to its warehouse.

Current developments: from static values to dynamic reorder points

Classic reorder points are maintained manually at periodic intervals. The trend is towards dynamic methods that continuously re-evaluate demand, lead time and variability and adjust the reorder point by time horizon.

Forecast-based and AI-supported planning

Modern systems use statistical forecasts or machine learning models to detect demand spikes and lead time drift earlier. The reorder point is then not maintained as a fixed value but as a calculated curve. In practice, it is worth starting with simple rule sets: automatic warning when actual lead times deviate, periodic recalculation and exception lists for planners. Such steps usually already deliver a large part of the benefit without requiring complex algorithms.

Resilience, transparency and sustainability

Supply chain disruptions have sharpened awareness of buffer strategies in recent years. Many companies have selectively increased safety stocks, particularly for critical imported parts, and document this traceably – also with a view to reporting requirements imposed by the Supply Chain Due Diligence Act on supply chain risks. At the same time, pressure is growing not to permanently increase stock: capital tie-up and warehousing risks argue against excessive buffers. The reorder point thus becomes a balancing instrument between resilience and efficiency that must be recalibrated regularly.

Typical metrics

Delivery reliability (internal schedule adherence): typically > 95%

Shows whether reorder points and safety stocks are set realistically.

Inventory turnover: depending on material class, often 4–12 per year

Values that are too low indicate excessive reorder points or safety stocks.

Proportion of verified lead times in the material master: target: > 90% of active items

Core indicator of the data quality of planning.

Number of stockouts/inventory shortfalls: target: trending towards zero

Frequent cases point to parameters set too tightly or supply problems.

Practical example

A medium-sized mechanical engineering company with around 12,000 actively procured items had historically grown reorder points without review cycles. After several production stoppages due to missing standard components, all planning master data was systematically reworked.

- Lead times for all A and B items agreed with suppliers and stored in the material master with a review date
- Safety stocks recalculated statistically, tiered by material criticality from the bottleneck analysis
- Automatic warning to planners when a reorder point is breached twice in succession
- Framework agreements concluded for standard parts so that orders generated from the reorder point book directly onto valid terms

Conclusion

The reorder point is a simple but powerful instrument of demand planning. Its benefit stands and falls with the quality of the master data, especially lead times, and with regular review of the parameters. Combined with clear controls, transparent supplier agreements and traceable exception management, it contributes significantly to delivery readiness and inventory optimisation. For buyers, it is worth looking beyond the pure formula: contracts, supplier communication and system integration determine whether the reorder point delivers in practice what the formula promises.

Frequently asked questions

What is a reorder point?

The reorder point is the inventory level at which a new order is triggered. It typically consists of demand during the replenishment lead time plus safety stock. The aim is to have material available in good time without holding unnecessarily high stock levels.

How is the reorder point calculated?

The basic formula is: average demand per time unit multiplied by the replenishment lead time plus safety stock. Safety stock can be determined statistically based on demand and delivery variability and the target service level. It is important to capture all lead time components, including internal processing times.

What is the difference between reorder point and safety stock?

Safety stock is a buffer against demand and supply uncertainties. The reorder point is the trigger level and additionally includes the expected consumption during the replenishment lead time. It therefore usually lies above the safety stock.

How often should the reorder point be updated?

In practice, an annual basic review has proven effective, supplemented by ad hoc reviews when lead times change, demand jumps, or suppliers change. For dynamic items or critical parts, shorter cycles,

e.g. quarterly, are sensible. What matters is a documented review process within master data management.

When is reorder point planning appropriate?

The reorder point method is suitable for materials with comparatively stable, independent demand and manageable lead times, typically C items and many B items. For sporadic demand, project business or critical A items, demand-oriented or contractually secured planning approaches are better suited. A material class analysis helps with assignment.

What role does the reorder point play in the ERP system?

The ERP system monitors stock levels, triggers order proposals and can automatically generate purchase orders or pass them to e-procurement platforms. The prerequisites are correct master data and defined planning logic per material. In addition, many systems offer exception lists and simulations for checking parameters.