Reorder point (ROP) control

This method of inventory control is widely used and forms the basis for understanding other methods. It can be adapted for system-controlled processes as well as manual and visual environments. When control parameters are kept constant, ROP control is a Pull system. Kanban is a form of ROP control.

In the following notes, a period is a consistent unit of time used for planning. Depending on the supply chain, it may be an hour, day, week or month. The important point is to maintain consistency throughout the calculations.

For each SKU, ROP requires us to define:

- Forecast demand per period (D) – how much we expect to use/sell
- Supplier lead time (LTs) – time expressed in periods between submitting an order and receiving delivery
- Planned order size (Q) – normal quantity of product we plan to order each time
- Safety stock (SS) – target stock on hand just before we receive an order
- Review time (R) – time interval expressed in periods between reviews of stock levels to determine whether to place an order
- Process lead time (LTp) – time expressed in periods from receipt of goods to their being available to the customer

We then derive:

- Effective lead time (ELT) = LTs + LTp + ½ R
- Lead time demand (LTD) = ELT x D
- Reorder point (ROP) = SS + LTD
- Order-up-to level = ROP + Q

Each time we review the stock, we count:

- Stock on hand – real stock on the shelf
- Stock on order – the total outstanding orders from the supplier
- Back-orders – any stock ordered by a customer

We derive:

- Effective stock = stock on hand + stock on order – backorders

We place an order if:

- Effective stock <= ROP

The amount we order is:

- ROP + Q – Effective stock

For more information see Inventory Management 101: How reorder point control works at [http://www.supplychainview.com/blog/?p=88](http://www.supplychainview.com/blog/?p=88)