Estimating Warehouse Costs

When estimating warehouse costs – all cost related to keeping items on the shelfs should be included. A rule to help you determine whether to include post or not is to ask yourself if the cost will remain if the stock was to be terminated. If no - include the cost!

Relevant Cost types
The following suggested cost types could each be a consequence of keeping your items on stock.

1. Capital Cost
2. Rental fee - warehouse
3. Interiors such as shelfs and racks.
4. Kostnader för hanteringsutrustning
5. Equipment
6. Insurances
7. Obsolescence, waste and depreciation.
8. Annual counting
9. Administration
10. Data processing
11. Personell

If warehouse costing is calculated on an annual basis, then the above-mentioned cost types can be categorized as following:
No. 2-4, 6 as well as no. 9 -11 can be considered fixed costs.
No. 1 and 7 could mainly be considered variable while no. 5 and 8 ends up somewhere in between.

Because no. 2–4, 6 and 8–11 are considered fixed – perhaps you should consider if they really are topical in all of this.
In many (Swedish) companies they are included, though this does not mean it is entirely correct.
If not due to special reasons, they should be excluded from the estimation.
The capital cost for a warehouse is estimated by its values interest and there are two main options on how to decide your stocks interest.

1. The capital that is in inventory is often tied to a bank or other lender. It is then reasonable that the interest rate should be set equal to the normal loan interest for the time of the loan decision.
2. The capital that is tied up in inventory could be used for other investments that could yield interest. This way of thinking means that you see inventory as an investment in current assets on which you must place the same demand for return as on other alternative possible investments.

How to estimate your Warehouse Costs

1. Establish the capital cost of goods in inventory as a percentage by policy decision. This corresponds to the first part of the inventory factor.
2. Calculate the sum of special storage costs for cost types 2–11 as above.
   (or just cost element 7 if only variable cost is to be used).
3. Estimate expected total inventory value on average over the coming year.
4. Calculate the second part of the inventory holding factor by dividing the total inventory overhead by the estimated inventory value and multiplying by 100.
5. Calculate the inventory holding factor by summing the percentages obtained in step 1 and step 4.
6. Calculate the inventory holding cost per year for each item by multiplying the inventory holding factor by the inventory value of the item and dividing by 100.

Supplementary comments and instructions

The calculation methodology above means that the inventory value of the articles is used as the distribution base. In some cases, such a distribution base can be at its crudest. This applies, among other things, if there are large differences in properties between different articles. For example, some items may be taken out very often, others rarely in relation to the total annual consumption and thus require more resources for inventory. With the inventory value distribution base, the low-turnover items then have to "pay for" the high-turnover ones. Another example is differences in inventory volume requirements. The stock value of the distribution base then means that relatively high costs are placed on expensive items with small volume requirements compared to cheaper and volume-demanding items. One way to solve such problems is to differentiate the inventory factor at the item group level.
Cost type 7, i.e. costs for depreciation, wastage and obsolescence, can, if they represent relatively small amounts, or if one is content with relatively rough estimates when determining special storage costs, be treated in the same way as the other cost types, i.e. so that the items bear these costs in proportion to their inventory values.

If depreciation, wastage, obsolescence for example, are largely the same for the entire product range, this is both a practical and theoretically reasonable procedure. If, on the other hand, there are differences that are not negligible, a finer distribution should be achieved. This is, for example, the case if certain articles or article groups are more likely to be stolen, are more or less fashionable or more or less sensitive to obsolescence through storage. You can then set a depreciation charge per article group instead.

A more efficient way to manage risks of items becoming obsolete is not to include the corresponding costs in the inventory factor, but instead to supplement the calculation of order quantities with limit values for the maximum consumption time you want to accept. If, for example, the annual consumption of an article is 1200 pieces and you do not want the quantity ordered to last more than three months due to the risk of obsolescence, the order quantity should be limited to 300 pieces. With such a procedure, it becomes possible to limit desirable lying times in a more precise and consistent manner. It also becomes easier to differentiate the handling of different items with respect to each one's risk of obsolescence, i.e. so that items with a low risk of obsolescence are allowed larger order quantities and for items with a high risk of obsolescence smaller order quantities.
Given that the sum of inventory-specific costs and order-specific costs is fairly insensitive to deviations from economically optimal order quantities, it is normally perfectly acceptable to use such replenishment rules.

In Swedish companies, warehouse factors of 20–30% are generally used.
In individual cases, even higher values occur, usually due to high interest rate requirements on capital.

Source:
Mattsson, S-A (2010) Effektiv materialstyrning