RUTGERS
Rutgers Business School
Newark and New Brunswick

The Safety Stock Calculation

Please review the following notation:

SS = safety stock

k = service factor

Note: number of standard deviations to cover for a given service level

Sc = combined standard deviation of lead time and demand

t = average replenishment lead time

Sd = standard deviation of daily sales

d = average daily sales

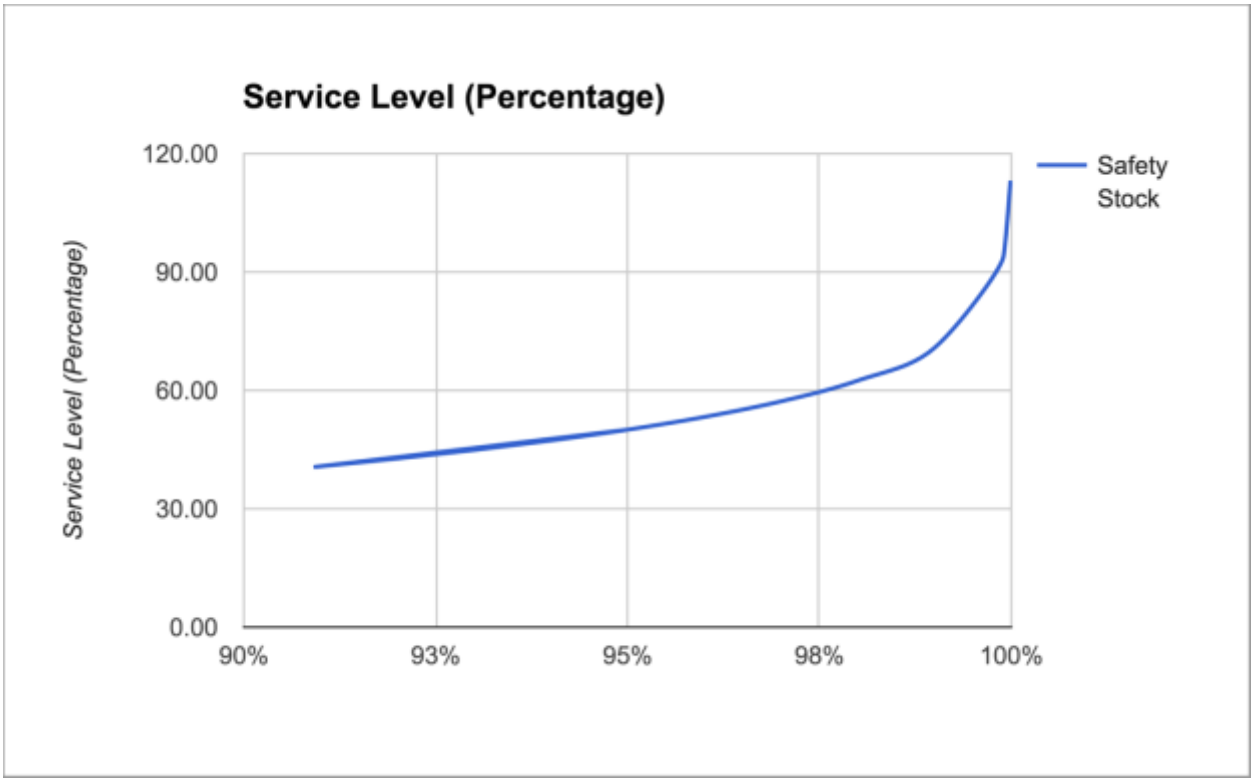
St = standard deviation of replenishment cycle

Step 1: Calculate the Combined Standard Deviation of Lead Time and Demand

$$S_c = \sqrt{t \times S_d{}^2 + d^2 \times S_t{}^2}$$

Step 2: Pick your desired Service Level

This step depends on how much inventory you can carry to prevent a stockout. The higher the service level the more inventory you need to carry. Most companies pick a service level between 90% and 99%.



Step 3: Calculate the Safety Stock

$$SS = k \times S_c$$

Now it is your turn to practice!

Please download the following file:

Safety Stock Example Data.csv

Hopefully you are able to get the same results as these:

Average Demand (d)	19.73
Standard Deviation of Demand (Sd)	2.78
Average Lead Time (t)	5.67
Standard Deviation of Lead Time (St)	1.51
Service Level (Percentage)	95%
Service Level (k)	1.64
Combined Standard Deviation (Sc)	30.43
Safety Stock (SS)	**50.06**