

# TECH NOTES – Calculating Scales

## Scaling data used by PerfectTest

There are three different methods commonly used to calculate predicted material expansion (scale factors) in the PCB industry:

1. One is a percentage, such as 100.015% of nominal dimension.
  2. One is Inch/Inch, such as 1" = 1.00015"
  3. One is a factor, such as  $100.015\% / 100 = 1.00015$  (This is the method used by PerfectTest for entering scale factors when setting up jobs)
- A factor that stays the same (has no change) is a factor of 1.  
⇒ Example  $100\% / 100 = 1$ .
  - If the corrected number needs to be smaller than the original number, then the factor will be less than 1.  
⇒ Example,  $99.982\% / 100 = 0.99982$ .
  - If the corrected number needs to be larger than the original number, then the factor will be more than 1.  
⇒ Example,  $100.024\% / 100 = 1.00024$ .

When the *nominal*, or starting dimension of an artwork is multiplied by the *scale factor*, the result is a corrected *scale factor*. This corrected scale factor will assure that the dimensions of the resulting PCB image will be correct after fabrication.



For complete information on how PerfectTest systems control innerlayer registration on high-density PCBs, contact us.

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