Thermal Expansion/Contraction Work Sheet

This work sheet is designed to aid you in determining what expansion and contraction your King StarBoard® part will experience.

CONTRACTION

A = _________ °F. What is the approximate temperature at the time of fabrication?

B = _________ °F. What is the lowest temperature you part will experience in the place of services?

Subtract B from A.

This gives you the temperature difference for shrinkage due to cold.

EXPANSION

A = _________ °F. What is the approximate temperature at the time of fabrication?

B = _________ °F. What is the highest temperature you part will experience in the place of services?

Subtract B from A.

This gives you the temperature difference for expansion due to heat.

Let’s call the difference “D” = _________ °F.

To calculate the amount you part will expand or contract, multiply the following:

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\frac{D \text{ °F}}{D = \text{temp. difference}} \times \frac{L \text{ or } W \text{ inches}}{L \text{ or } W = \text{Length}} \times \frac{.00006}{.00006 = \text{coefficient}} = \frac{E \text{ or } C \text{ inches}}{E \text{ or } C = \text{amount of expansion or contraction}}
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Example: If a King StarBoard® sheet was being cut in a shop at 70° F and the highest temperature the part will experience is 100° F, the Temperature Difference (D) is 30.

The part is 96 inches, so the expansion is”

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30 \text{° F} \times 96'' \times .00006 = .173 \text{ or approximately } 3/16''
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