

# Thermal Shock Limitations



Thermal Shocking your process vessel is an all too common practice in the industry today. At Holloway, we don't recommend "Thermal Shocking" your vessel as it will drastically reduce its useful life.

## Thermal Shock Limitations Case 1 & 2

These high stresses can cause premature failure of the vessel. The purpose of this document is to provide recommended limits to temperature differences between the vessel and the contents of the vessel and the heat transfer media that may be applied to the vessel.

The general guideline is that the temperature difference (Delta T) should be no more than 100° F between the internal process fluid and the heat transfer media that is being introduced into the heat transfer jacket. (See Figure 1)

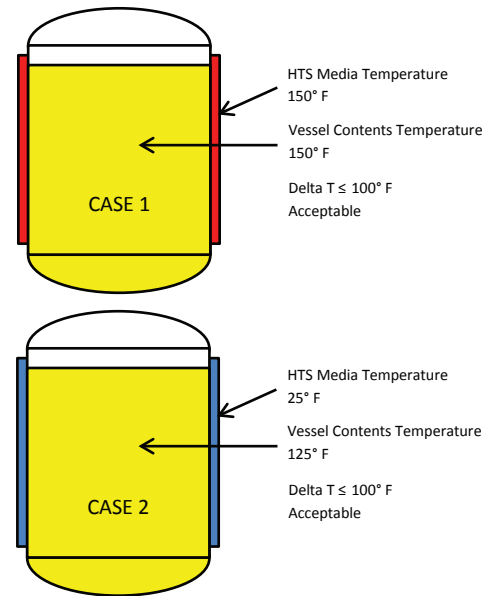


Figure 1

## Thermal Shock Limitations Case 3 & 4

There is also a similar limit to the temperature difference between the vessel metal and any fluid that is introduced into the vessel chamber or the heat transfer jacket.

For Example, if the vessel is empty and process fluid is added to the vessel, that process fluid should not be more than 100° F higher or lower than the vessel wall temperature at the time of addition. Likewise, if a vessel is empty and the heat transfer media temperature is adjusted, it should not be more than 100° F higher or lower than the vessel wall temperature. (See Figure 2)

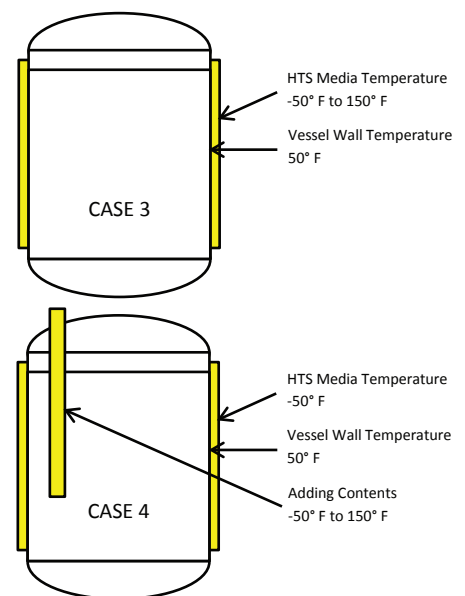


Figure 2



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