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Single Pass Shell Counter Current Heat Exchanger



Omid Shojaei
Chartered Process Engineer at Petrofac

Dear All,
I would appreciate your advise on my query. Can we select a Single Pass Shell Counter Current Heat Exchanger as a solution to a temperature cross? So why most of the designs I have come across have selected Multiple Shell & Tube Exchangers instead?
Many thanks,

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3 comments



Fahad Al-Sadoon
Process Engineer at Petrofac Engineering Ltd

Fahad

If you go with a single shell then you can apply only one tube pass to ensure pure counter-current flow. This will result in unreasonable big heat transfer area. In addition, you will need your B stream (cross flow stream in shell) to have a high percentage to avoid temperature distortion.

Try shell type F with two tube pass, this will still guarantee purely counter-current flow. If this doesn't work, then multiple shell is the usual alternative.

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Vyankatesh Belapurkar
Process Head

Vyankatesh

Multiple exchangers with the two side fluids are required. They ensure that temperature cross do not happen. You can also decide how many such exchangers are required by plotting the curves for both fluids in & out temperatures. Single exchanger will not be able to avoid temp.cross.

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Omid Shojaei
Chartered Process Engineer at Petrofac

Omid

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