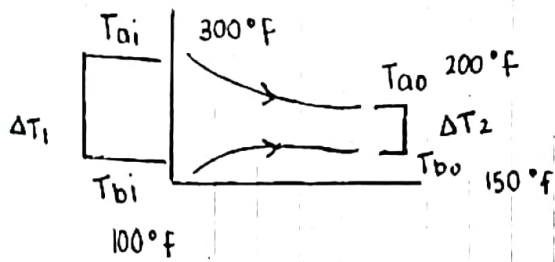


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 PERPAN TUGAS A

1. Jawab :



Kondisi Searah

Temperatur heat fluide in ( $T_{ai}$ ) =  $300^{\circ}\text{F}$

Temperatur heat fluide out ( $T_{ao}$ ) =  $200^{\circ}\text{F}$

Temperatur cold fluide in ( $T_{bi}$ ) =  $100^{\circ}\text{F}$

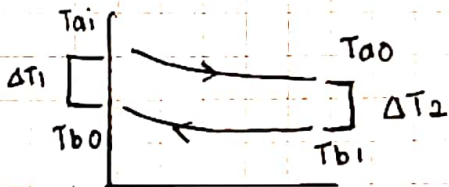
Temperatur cold fluide out ( $T_{bo}$ ) =  $150^{\circ}\text{F}$

maka  $\Delta T_1 = 300^{\circ}\text{F} - 100^{\circ}\text{F} = 200^{\circ}\text{F}$

$\Delta T_2 = 200^{\circ}\text{F} - 150^{\circ}\text{F} = 50^{\circ}\text{F}$

$$\text{untuk } \Delta T_{LMTD} = \frac{\Delta T_1 - \Delta T_2}{\ln(\Delta T_1 / \Delta T_2)} = \frac{(200 - 50)}{\ln(200/50)} = \frac{150}{1,90}$$

$$= 108^{\circ}\text{F} \rightarrow 315,37 \text{ K}$$



maka  $\Delta T_1 = 300^{\circ}\text{F} - 150^{\circ}\text{F} = 150^{\circ}\text{F}$

$\Delta T_2 = 200^{\circ}\text{F} - 100^{\circ}\text{F} = 100^{\circ}\text{F}$

$$\text{untuk } \Delta T_{LMTD} = \frac{\Delta T_1 - \Delta T_2}{\ln(\Delta T_1 / \Delta T_2)} = \frac{(150 - 100)}{\ln(150/100)} = \frac{50}{0,4}$$

$$= 125^{\circ}\text{F} = 324,8 \text{ K}$$

maka untuk hasil max, pipa konsentris disusun secara berlawanan arah karena konsiderasi  $\Delta T_{LMTD}$  yang lebih besar dibanding kondisi searah sehingga akan menghasilkan  $\alpha$  lebih besar