

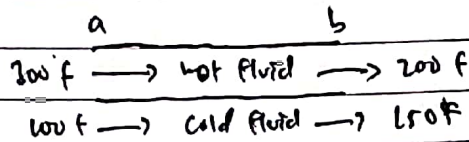
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No.
Date

1. Fluida panas memasuki pipa konduktansi pada suhu 300 F dan didinginkan hingga 200 F menggunakan fluida dingin yang masuk pada 100 F dan keluar bersuhu 150 F

a. Berapa nilai ΔT_{lmtd}

Paralel



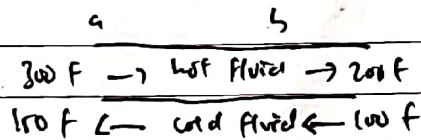
$$\Delta T_a = 300 \text{ F} - 100 \text{ F} \\ = 200 \text{ F}$$

$$\Delta T_b = 200 \text{ F} - 150 \text{ F} \\ = 50 \text{ F}$$

$$\Delta T_{\text{lmtd}} = \frac{\Delta T_a - \Delta T_b}{\ln \left(\frac{\Delta T_a}{\Delta T_b} \right)} = \frac{200 - 50}{\ln \left(\frac{200}{50} \right)} = 108,2 \text{ F}$$

$$\ln \left(\frac{\Delta T_a}{\Delta T_b} \right) \quad \ln \left(\frac{200}{50} \right)$$

Lawan arah



$$\Delta T_a = 300 \text{ F} - 150 \text{ F} \\ = 150 \text{ F}$$

$$\Delta T_b = 200 \text{ F} - 100 \text{ F} \\ = 100 \text{ F}$$

$$\Delta T_{\text{lmtd}} = \frac{\Delta T_a - \Delta T_b}{\ln \left(\frac{\Delta T_a}{\Delta T_b} \right)} = \frac{150 - 100}{\ln \left(\frac{150}{100} \right)} = 121,31 \text{ F}$$

$$\ln \left(\frac{\Delta T_a}{\Delta T_b} \right) \quad \ln \left(\frac{150}{100} \right)$$

b. Lawan arah karena memiliki nilai ΔT_{lmtd} lebih besar sehingga perpindahan panas lebih besar.