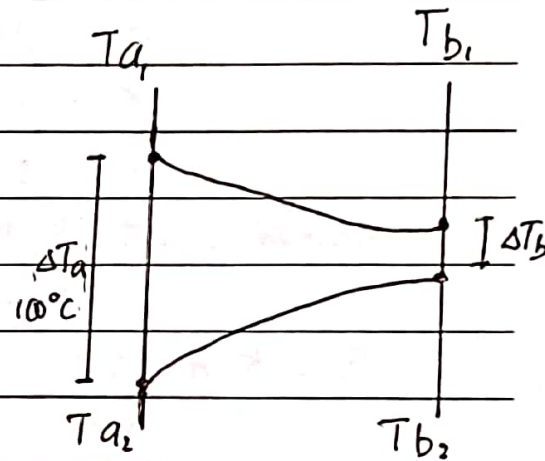


• Parallel flow

a b
 $300^\circ\text{F} \rightarrow \text{cooled} \rightarrow 200^\circ\text{F}$ (hot fluid)
 $100^\circ\text{F} \rightarrow \text{heated} \rightarrow 150^\circ\text{F}$ (cold fluid)
 $\Delta T_a = 200^\circ\text{F}$ $\Delta T_b = 50^\circ\text{F}$

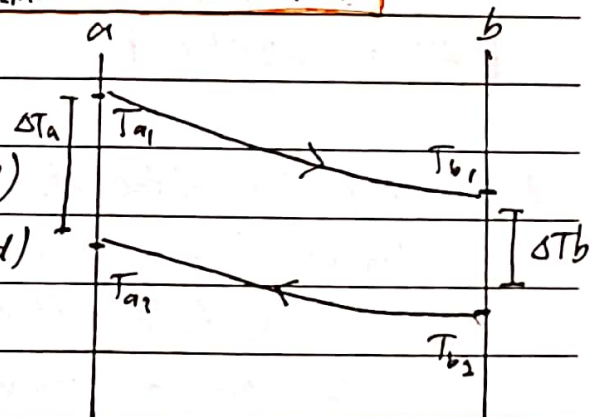


$$\Delta T_{LMP} = \frac{\Delta T_a - \Delta T_b}{\ln\left(\frac{\Delta T_a}{\Delta T_b}\right)} = \frac{200^\circ\text{F} - 50^\circ\text{F}}{\ln\left(\frac{200^\circ\text{F}}{50^\circ\text{F}}\right)} = \frac{150^\circ\text{F}}{\ln(4)}$$

$$\Delta T_{LM} = 108.2021^\circ\text{F}$$

• Counter flow

a b
 $300^\circ\text{F} \rightarrow \text{cooled} \rightarrow 200^\circ\text{F}$ (hot fluid)
 $150^\circ\text{F} \leftarrow \text{heated} \leftarrow 100^\circ\text{F}$ (cold fluid)
 $\Delta T_a = 150^\circ\text{F}$ $\Delta T_b = 100^\circ\text{F}$



$$\Delta T_{LMP} = \frac{\Delta T_a - \Delta T_b}{\ln\left(\frac{\Delta T_a}{\Delta T_b}\right)} = \frac{150 - 100}{\ln\left(\frac{150}{100}\right)} = 50 \cdot \frac{123,315^\circ\text{F}}{\ln(1,5)}$$

★ Jadi counterflow lebih baik digunakan karena memiliki nilai ΔT_{LMP} lebih besar sehingga perpindahan panas lebih besar