Heat Exchanger Simulation Report: TP1

User

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1 Introduction

This report presents the results of the TP1 simulation for a heat exchanger.

2 Experimental Parameters

- Cold Fluid: water
- Hot Fluid: water
- Material: stainless steel
- Cold Inlet Temperature: 20°C
- Hot Inlet Temperature: 80°C
- Pipe Length: 2 m
- Pipe Diameter: 0.1 m

3 Methodology

The simulation uses the following heat transfer equations:

$$\begin{aligned} \text{Q} = \ &\cdot c_p \cdot \left(T_{out} - T_{in}\right) \quad \text{(Heat transfer)} \\ Q = U \cdot A \cdot &\Delta T_{lm} \quad \text{(Overall heat transfer)} \end{aligned} \tag{1}$$

4 Results and Discussion

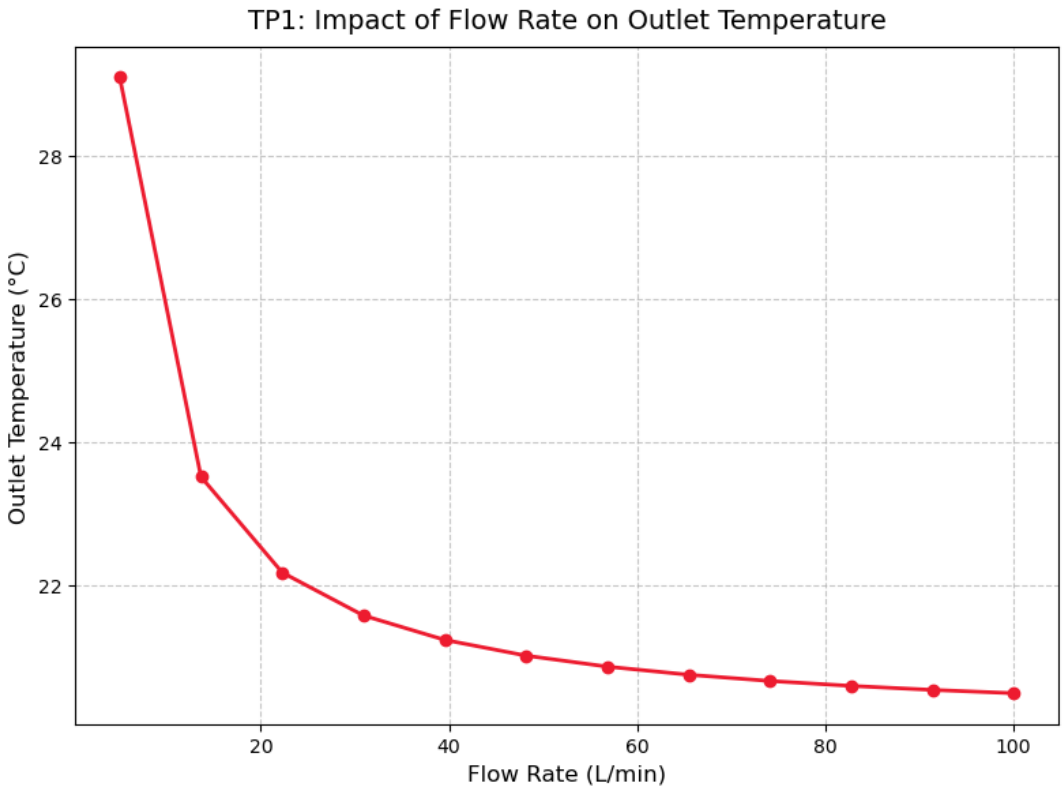

Figure 1: Simulation results for TP1

5 Conclusion

The simulation results show the impact of the varied parameter on the outlet temperature, heat transferred, and efficiency.

Flow Rate (L/min) 29.09	Outlet Temp (°C) 3170.16	Heat Transferred (W) 15.15	Efficiency (height5.0
13.636363636363637	23.51	3341.27	5.85
22.272727272727273	22.18	3381.43	3.63
30.90909090909091	21.58	3399.36	2.63
39.54545454545455	21.24	3409.52	2.06
48.18181818181819	21.02	3416.06	1.69
56.81818181818182	20.86	3420.62	1.44
65.45454545454545	20.75	3423.98	1.25
74.0909090909091	20.66	3426.56	1.1
82.72727272727273	20.59	3428.6	0.99
91.36363636363637	20.54	3430.26	0.9
100.0	20.49	3431.64	0.82

Table 1: Results for TP1: Flow Impact