Heat Exchanger Design

Sample document with complete example values. It shows the report the purchased export produces for YOUR input - it is not itself a report for any part.

Project: Sample project | Part/Position: no real part | Prepared by: Sample, not released

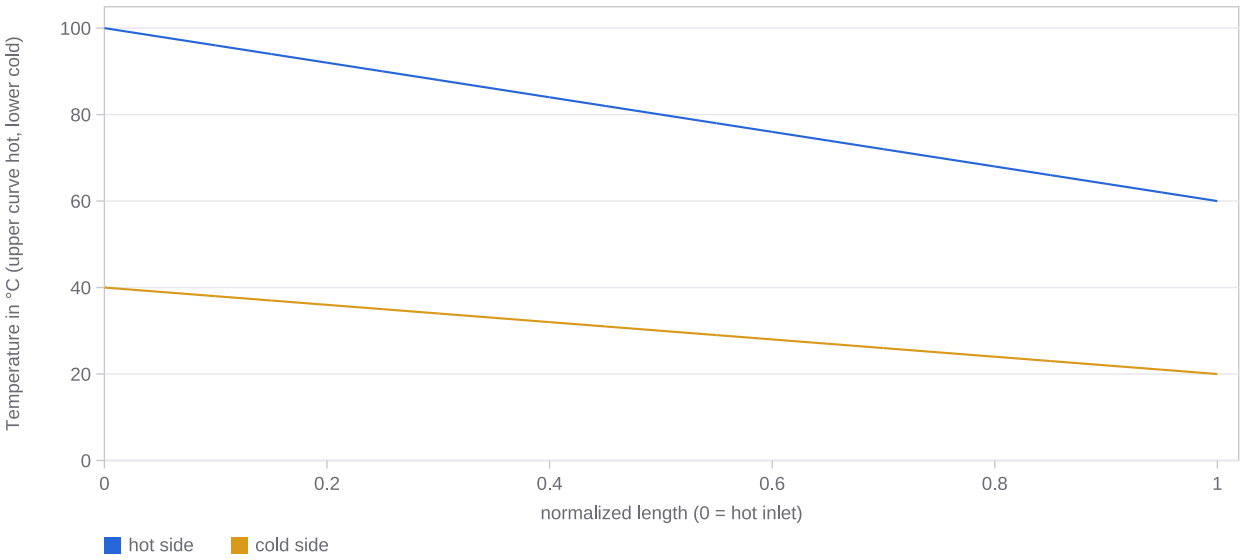
Operating point

Method	LMTD (log mean temperature difference)
Flow arrangement	Counterflow
Hot side inlet	100 °C
Cold side inlet	20 °C
Hot side outlet	60 °C
Cold side outlet	40 °C
k·A	1,000 W/K

Results

Temperature difference end 1 ΔT_1	60 K
Temperature difference end 2 ΔT_2	40 K
Log mean temperature difference LMTD	49.33 K
Heat flow Q	49.326 kW

Temperature profile (schematic)



Calculation basis

Recuperator without phase change. The LMTD method sets the heat flow as Q = k·A·ΔT_m, using the log mean temperature difference ΔT_m = (ΔT$_1$ − ΔT$_2$)/ln(ΔT$_1$/ΔT$_2$); for equal end differences the limiting value is ΔT_m = ΔT$_1$. The end differences ΔT$_1$ and ΔT$_2$ are formed from the four inlet and outlet temperatures depending on the flow arrangement (counterflow or parallel flow).

The ε-NTU method works with the heat capacity rates C = m·cp: NTU = k·A/C_min, Cr = C_min/C_max, and the flow-arrangement-dependent effectiveness ε. The heat flow follows from Q = ε·C_min·(T_hot,in − T_cold,in), the outlet temperatures from the energy balance. The temperature profile is shown as a linear sketch with exact end points.

About this sample

All values on these pages come from a freely chosen example calculation and belong to no real part. The purchased export contains the same sections with your input, your header data (project, part, prepared by) and as searchable text. Pricing and scope: maschinenbaurechner.de/en/pricing

Note: The results are design and orientation aids. They do not replace independent verification, calculation and approval by a qualified person. The terms of use at maschinenbaurechner.de apply.