Mixing Chamber

purpose : to combine fluid streams
at constant pressure

Problem 6.97

$\dot{W}_{cv} = 0$

(2) ⟶
(1) ⟶

R-410a

(3) ⟶

$\dot{Q}_{cv}$

CV
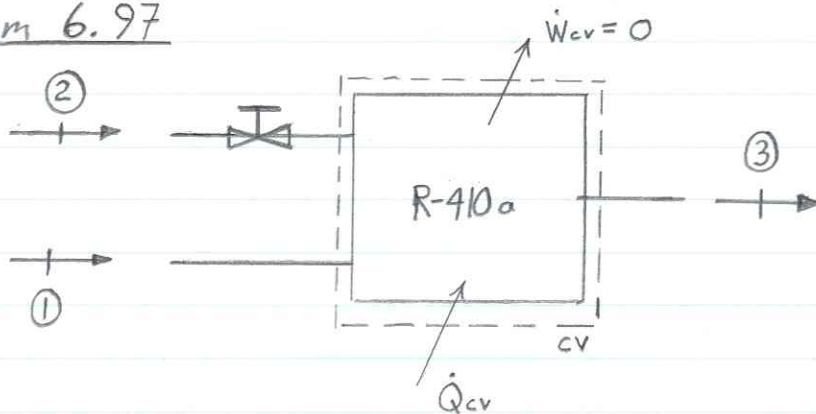
Assumptions:
1. SSSF
2. Δke, $\Delta pe = 0$

line 1
$\dot{m}_1 = 2$ kg/s   R-410a
$P_1 = 1$ MPa
$T_1 = 40°C$

line 2
$\dot{m}_2 = 1$ kg/s
$T_2 = 15°C$
x_2 50%

line 3
$P_3 = 1$ MPa
$T_3 = 60°C$

Find the rate of heat transfer.