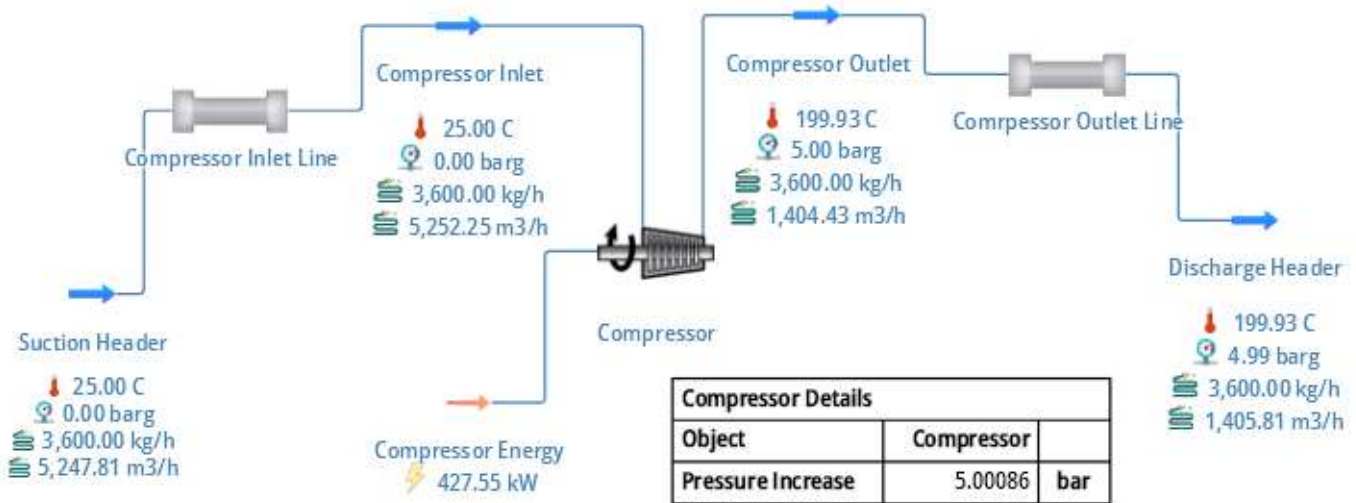

Compressor Details		
Object	Compressor	
Pressure Increase	5.00086	bar
Adiabatic Efficiency	75	%
Power Required	427.554	kW
Outlet Pressure	5	barg
Rotation Speed	1500	rpm

Inlet pressure from Suction Header (abs)

$P_1 := 101.32\ \text{kPa} = 1.0132 \cdot 10^{5}\ \text{Pa}$

Outlet pressure in Discharge Header (abs)

$P_2 := 600\ \text{kPa} = 6 \cdot 10^{5}\ \text{Pa}$

Efficiency of Compressor

$\eta := 75\ \%$

Volumetric Flow of Gas

$Q_{v1} := 5247.81\ \frac{\text{m}^3}{\text{hr}} = 1.4577\ \frac{\text{m}^3}{\text{s}}$

Specific ratio of Heat Capacities

$k := 1.28$

Power Required By adiabatic compressor

$$P_0 := \frac{2.78 \cdot 10^{-4}}{\eta} \cdot \left(\frac{k}{k-1}\right) \cdot Q_{v1} \cdot P_1 \cdot \left(\left(\frac{P_2}{P_1}\right)^{\frac{k-1}{k}} - 1\right) \cdot 3600 = 428.5185\ \text{kW}$$