







Total work considered for efficiency: 0.000 J

Total heat considered for efficiency: 0.000 J

Efficiency (Work/Heat): NaN

**End of stage 1: Constant energy and volume**

Current Time [s]: 1.000

Avg Temperature Particles [K]: 300.000

Volume [m<sup>3</sup>]: 0.250

Internal pressure [Pa]: 10248.755

External pressure [Pa]: 9976.800

Total Energy [J]: 3741.508

Total Work (by System) [J]: 0.000

Total recorded work [J]: 0.000

Work during current stage [J]: 0.000

Total Heat (into System) [J]: 0.000

Total recorded heat [J]: 0.000

Heat during current stage [J]: 0.000

$pV/nRT$ : 1.027

**End of stage 2: Constant volume, 300 K**

Current Time [s]: 2.000

Avg Temperature Particles [K]: 301.486

Volume [m<sup>3</sup>]: 0.250

Internal pressure [Pa]: 9539.339

External pressure [Pa]: 9976.800

Total Energy [J]: 3760.046

Total Work (by System) [J]: 0.000

Total recorded work [J]: 0.000

Work during current stage [J]: 0.000

Total Heat (into System) [J]: 18.537

Total recorded heat [J]: 0.000

Heat during current stage [J]: 18.537

$pV/nRT$ : 0.951

**End of stage 3: Constant volume, 400 K (end of experiment)**

Current Time [s]: 3.000

Avg Temperature Particles [K]: 399.118

Volume [m<sup>3</sup>]: 0.250

Internal pressure [Pa]: 13611.242

External pressure [Pa]: 9976.800

Total Energy [J]: 4977.683

Total Work (by System) [J]: 0.000

Total recorded work [J]: 0.000

Work during current stage [J]: 0.000

Total Heat (into System) [J]: 1236.175

Total recorded heat [J]: 0.000

Heat during current stage [J]: 1217.638

pV/nRT: 1.025

```

#Carnot experiment file 2.0
#experimentFileTmp.txt
#Settings
    Step size                : 0.00005
    Animation fps             : 20
    Reports per second        : 100
    Number of moles           : 1.0
    Number of particles       : 15000
    Particle mass             : 28.0
    Initial particle temperature : 300.0
    Particle heat exchange rate : 100.0
    Chamber width             : 1.0
    Chamber height            : 1.0
    Chamber depth             : 1.0
    Piston mass               : 0.2
    Initial heater temperature : 9976.8
#Scheduler
    scheduler name           : Constant energy and volume
    scheduler duration       : 1.0
    schedule piston?         : true
    schedule heaters?        : true
    schedule pressure?       : false
    report heat?             : false
    report work?             : false
    piston mode              : 1
    chamber volume           : 0.25
    heater mode              : 0
    heater temperature       : 300.0
    heater rate              : 100.0
    pressure mode            : 0
    pressure                 : 30000.0
#Scheduler
    scheduler name           : Constant volume, 300 K
    scheduler duration       : 1.0
    schedule piston?         : false
    schedule heaters?        : true
    schedule pressure?       : false
    report heat?             : false
    report work?             : false
    piston mode              : 1
    chamber volume           : 0.25
    heater mode              : 1
    heater temperature       : 300.0
    heater rate              : 100.0
    pressure mode            : 0
    pressure                 : 4983.0
#Scheduler
    scheduler name           : Constant volume, 400 K
    scheduler duration       : 1.0
    schedule piston?         : false
    schedule heaters?        : true
    schedule pressure?       : false
    report heat?             : false
    report work?             : false
    piston mode              : 0
    chamber volume           : 0.5
    heater mode              : 1

```

heater temperature : 400.0  
heater rate : 100.0  
pressure mode : 0  
pressure : 30000.0