

Energy balance lab report

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1 Lab data

1.1 1 bar

- $T_0 = 25$ degrees
- $T_1 = 23$ degrees
- $P_0 = 1$ bar
- $P_1 = 0.05$ bar
- $P_2 = 1$ bar
- $V_{in} = 285 \text{ L min}^{-1}$
- $N = 1430 \text{ N}$
- $F = 1.5 \text{ kg}$
- $\dot{W}_{el} = 1150 \text{ W}$

1.1.1 T_2 readings

Time (min)	T_2 (degrees)
0	95
1	98
2	101
3	104
4	106
5	108
6	110
7	112
8	114
9	116
10	118
11	119
12	121
13	122
14	124
15	125
16	127
17	128
18	130
19	131
20	131

Table 1: T_2 readings from apparatus with 1 bar compressor

1.2 0.6 bar

- $T_0 = 25$ degrees
- $T_1 = 24$ degrees
- $P_0 = 1$ bar
- $P_1 = 0.06$ bar
- $P_2 = 1$ bar
- $V_{in} = 310 \text{ L min}^{-1}$
- $N = 1445 \text{ N}$
- $F = 1.5 \text{ kg}$
- $\dot{W}_{el} = 1000 \text{ watt}$

1.2.1 T_2 readings

Time (min)	T_2 (degrees)
0	63
1	68
2	71
3	74
4	77
5	79
6	81
7	84
8	86
9	88
10	89
11	91
12	92
13	94
14	95
15	97
16	98
17	99
18	101
19	102
20	103

Table 2: T_2 readings from apparatus with 0.6 bar compressor

1.3 0.3 bar

- $T_0 = 25$ degrees
- $T_1 = 25$ degrees
- $P_0 = 1$ bar
- $P_1 = 0.08$ bar
- $P_2 = 1$ bar
- $V_{in} = 320 \text{ L min}^{-1}$
- $N = 1459 \text{ N}$
- $F = 1.5 \text{ kg}$
- $\dot{W}_{el} = 850 \text{ watt}$

1.3.1 T_2 readings

Time (min)	T_2 (degrees)
0	52
1	55
2	58
3	60
4	62
5	63
6	65
7	67
8	68
9	69
10	70
11	71
12	72
13	73
14	74
15	75
16	76
17	76
18	77
19	78
20	78

Table 3: T_2 readings from apparatus with 0.3 bar compressor