

Assignment

- A. Determine \mathbf{W}/\mathbf{m}_f for a Claude Cycle with N_2 as working fluid. The system operates between 1.013 bar (1 atm) and 50.56 bar (50 atm). The expander inlet \mathbf{T}_3 is at 250 K. The expander flow ratio is varied between 0.1 and 0.9.

- B. Repeat the above problem for $\mathbf{T}_3 = 300$ K, 275 K and 250 K. Plot the data \mathbf{y} , \mathbf{W}/\mathbf{m}_f versus \mathbf{x} graphically and comment on the results.

Assignment

- Answers

300		275		250	
x	y	x	y	x	y
0.10	0.07	0.10	0.06	0.10	0.06
0.20	0.12	0.20	0.11	0.20	0.10
0.30	0.16	0.30	0.15	0.30	0.14
0.40	0.21	0.40	0.19	0.40	0.17
0.50	0.26	0.50	0.23	0.50	0.21
0.60	0.31	0.60	0.27	0.60	0.25
0.66	0.33	0.68	0.31	0.70	0.29
0.70	0.29	0.70	0.29	0.72	0.27
0.80	0.19	0.80	0.19	0.80	0.19
0.90	0.09	0.90	0.09	0.90	0.09

Assignment

- Answers

300		275		250	
x	W/m _f	x	W/m _f	x	W/m _f
0.10	4666.1	0.10	5229.3	0.10	5605.3
0.20	2618.5	0.20	2956.9	0.20	3230.1
0.30	1744.2	0.30	1986.1	0.30	2195.9
0.40	1259.3	0.40	1447.5	0.40	1617.1
0.50	951.1	0.50	1105.1	0.50	1247.2
0.60	737.8	0.60	868.2	0.60	990.4
0.67	632.6	0.69	719.5	0.70	801.7
0.70	707.6	0.70	758.3	0.72	846.2
0.80	972.6	0.80	1061.1	0.80	1132.6
0.90	1826.7	0.90	2036.7	0.90	2206.7