Gas Turbine Parametric Study w/different fluid property models

Real Fluid Model (air_ha)

1..2	1 η_c	2 η_t	3 T_4 [F]	4 CR	5 $\dot{Vol}_1$ [cfm]	6 $\dot{W}_t$ [hp]	7 η_{th}	8 HR [Btu/kw-hr]	9 bwr
Run 1	1	1	751.2	4.018	94052	35703	0.4098	8327	0.4398
Run 2	0.8	0.85	874.2	3.64	175491	56626	0.2388	14288	0.6468

Air Standard Cycle (ASC) – Ideal Gas Model (air) with variable c_p

1..2	1 η_c	2 η_t	3 T_4 [F]	4 CR	5 $\dot{Vol}_1$ [cfm]	6 $\dot{W}_t$ [hp]	7 η_{th}	8 HR [Btu/kw-hr]	9 bwr
Run 1	1	1	751.2	4.031	94269	35731	0.4095	8333	0.4403
Run 2	0.8	0.85	874	3.652	176082	56730	0.2384	14311	0.6475

Cold Air Standard Cycle (ASC) – Ideal Gas Model (air) with constant c_p at T[1]

1..2	1 η_c	2 η_t	3 T_4 [F]	4 CR	5 $\dot{Vol}_1$ [cfm]	6 $\dot{W}_t$ [hp]	7 η_{th}	8 HR [Btu/kw-hr]	9 bwr
Run 1	1	1	686.9	4.014	99292	36579	0.4266	7998	0.4532
Run 2	0.8	0.85	814.9	3.627	191527	59974	0.2426	14064	0.6665

Air Standard Cycle (ASC) – Ideal Gas Model (air) with constant c_p at (T[1]+T[3])/2

1..2	1 η_c	2 η_t	3 T_4 [F]	4 CR	5 $\dot{Vol}_1$ [cfm]	6 $\dot{W}_t$ [hp]	7 η_{th}	8 HR [Btu/kw-hr]	9 bwr
Run 1	1	1	729.5	4.163	94843	35525	0.4053	8418	0.437
Run 2	0.8	0.85	851.1	3.78	175795	55969	0.2373	14376	0.6427