

Table T-9 Ideal Gas Properties of Air

$T(\text{K}), h$ and $u(\text{kJ/kg}), s^\circ (\text{kJ/kg} \cdot \text{K})$											
T	h	u	s°	when $\Delta s = 0^1$		T	h	u	s°	when $\Delta s = 0$	
				p_r	v_r					p_r	v_r
200	199.97	142.56	1.29559	0.3363	1707.	600	607.02	434.78	2.40902	16.28	105.8
210	209.97	149.69	1.34444	0.3987	1512.	610	617.53	442.42	2.42644	17.30	101.2
220	219.97	156.82	1.39105	0.4690	1346.	620	628.07	450.09	2.44356	18.36	96.92
230	230.02	164.00	1.43557	0.5477	1205.	630	638.63	457.78	2.46048	19.84	92.84
240	240.02	171.13	1.47824	0.6355	1084.	640	649.22	465.50	2.47716	20.64	88.99
250	250.05	178.28	1.51917	0.7329	979.	650	659.84	473.25	2.49364	21.86	85.34
260	260.09	185.45	1.55848	0.8405	887.8	660	670.47	481.01	2.50985	23.13	81.89
270	270.11	192.60	1.59634	0.9590	808.0	670	681.14	488.81	2.52589	24.46	78.61
280	280.13	199.75	1.63279	1.0889	738.0	680	691.82	496.62	2.54175	25.85	75.50
285	285.14	203.33	1.65055	1.1584	706.1	690	702.52	504.45	2.55731	27.29	72.56
290	290.16	206.91	1.66802	1.2311	676.1	700	713.27	512.33	2.57277	28.80	69.76
295	295.17	210.49	1.68515	1.3068	647.9	710	724.04	520.23	2.58810	30.38	67.07
300	300.19	214.07	1.70203	1.3860	621.2	720	734.82	528.14	2.60319	32.02	64.53
305	305.22	217.67	1.71865	1.4686	596.0	730	745.62	536.07	2.61803	33.72	62.13
310	310.24	221.25	1.73498	1.5546	572.3	740	756.44	544.02	2.63280	35.50	59.82
315	315.27	224.85	1.75106	1.6442	549.8	750	767.29	551.99	2.64737	37.35	57.63
320	320.29	228.42	1.76690	1.7375	528.6	760	778.18	560.01	2.66176	39.27	55.54
325	325.31	232.02	1.78249	1.8345	508.4	770	789.11	568.07	2.67595	41.31	53.39
330	330.34	235.61	1.79783	1.9352	489.4	780	800.03	576.12	2.69013	43.35	51.64
340	340.42	242.82	1.82790	2.149	454.1	790	810.99	584.21	2.70400	45.55	49.86
350	350.49	250.02	1.85708	2.379	422.2	800	821.95	592.30	2.71787	47.75	48.08
360	360.58	257.24	1.88543	2.626	393.4	820	843.98	608.59	2.74504	52.59	44.84
370	370.67	264.46	1.91313	2.892	367.2	840	866.08	624.95	2.77170	57.60	41.85
380	380.77	271.69	1.94001	3.176	343.4	860	888.27	641.40	2.79783	63.09	39.12
390	390.88	278.93	1.96633	3.481	321.5	880	910.56	657.95	2.82344	68.98	36.61
400	400.98	286.16	1.99194	3.806	301.6	900	932.93	674.58	2.84856	75.29	34.31
410	411.12	293.43	2.01699	4.153	283.3	920	955.38	691.28	2.87324	82.05	32.18
420	421.26	300.69	2.04142	4.522	266.6	940	977.92	708.08	2.89748	89.28	30.22
430	431.43	307.99	2.06533	4.915	251.1	960	1000.55	725.02	2.92128	97.00	28.40
440	441.61	315.30	2.08870	5.332	236.8	980	1023.25	741.98	2.94468	105.2	26.73
450	451.80	322.62	2.11161	5.775	223.6	1000	1046.04	758.94	2.96770	114.0	25.17
460	462.02	329.97	2.13407	6.245	211.4	1020	1068.89	776.10	2.99034	123.4	23.72
470	472.24	337.32	2.15604	6.742	200.1	1040	1091.85	793.36	3.01260	133.3	22.39
480	482.49	344.70	2.17760	7.268	189.5	1060	1114.86	810.62	3.03449	143.9	21.14
490	492.74	352.08	2.19876	7.824	179.7	1080	1137.89	827.88	3.05608	155.2	19.98
500	503.02	359.49	2.21952	8.411	170.6	1100	1161.07	845.33	3.07732	167.1	18.896
510	513.32	366.92	2.23993	9.031	162.1	1120	1184.28	862.79	3.09825	179.7	17.886
520	523.63	374.36	2.25997	9.684	154.1	1140	1207.57	880.35	3.11883	193.1	16.946
530	533.98	381.84	2.27967	10.37	146.7	1160	1230.92	897.91	3.13916	207.2	16.064
540	544.35	389.34	2.29906	11.10	139.7	1180	1254.34	915.57	3.15916	222.2	15.241
550	554.74	396.86	2.31809	11.86	133.1	1200	1277.79	933.33	3.17888	238.0	14.470
560	565.17	404.42	2.33685	12.66	127.0	1220	1301.31	951.09	3.19834	254.7	13.747
570	575.59	411.97	2.35531	13.50	121.2	1240	1324.93	968.95	3.21751	272.3	13.069
580	586.04	419.55	2.37348	14.38	115.7	1260	1348.55	986.90	3.23638	290.8	12.435
590	596.52	427.15	2.39140	15.31	110.6	1280	1372.24	1004.76	3.25510	310.4	11.835

1. p_r and v_r data for use with Eqs. 7.32 and 7.33, respectively.

Table T-9 (Continued)

$T(\text{K}), h$ and $u(\text{kJ/kg}), s^\circ (\text{kJ/kg} \cdot \text{K})$											
T	h	u	s°	when $\Delta s = 0$		T	h	u	s°	when $\Delta s = 0$	
				p_r	v_r					p_r	v_r
1300	1395.97	1022.82	3.27345	330.9	11.275	1600	1757.57	1298.30	3.52364	791.2	5.804
1320	1419.76	1040.88	3.29160	352.5	10.747	1620	1782.00	1316.96	3.53879	834.1	5.574
1340	1443.60	1058.94	3.30959	375.3	10.247	1640	1806.46	1335.72	3.55381	878.9	5.355
1360	1467.49	1077.10	3.32724	399.1	9.780	1660	1830.96	1354.48	3.56867	925.6	5.147
1380	1491.44	1095.26	3.34474	424.2	9.337	1680	1855.50	1373.24	3.58335	974.2	4.949
1400	1515.42	1113.52	3.36200	450.5	8.919	1700	1880.1	1392.7	3.5979	1025	4.761
1420	1539.44	1131.77	3.37901	478.0	8.526	1750	1941.6	1439.8	3.6336	1161	4.328
1440	1563.51	1150.13	3.39586	506.9	8.153	1800	2003.3	1487.2	3.6684	1310	3.944
1460	1587.63	1168.49	3.41247	537.1	7.801	1850	2065.3	1534.9	3.7023	1475	3.601
1480	1611.79	1186.95	3.42892	568.8	7.468	1900	2127.4	1582.6	3.7354	1655	3.295
1500	1635.97	1205.41	3.44516	601.9	7.152	1950	2189.7	1630.6	3.7677	1852	3.022
1520	1660.23	1223.87	3.46120	636.5	6.854	2000	2252.1	1678.7	3.7994	2068	2.776
1540	1684.51	1242.43	3.47712	672.8	6.569	2050	2314.6	1726.8	3.8303	2303	2.555
1560	1708.82	1260.99	3.49276	710.5	6.301	2100	2377.4	1775.3	3.8605	2559	2.356
1580	1733.17	1279.65	3.50829	750.0	6.046	2150	2440.3	1823.8	3.8901	2837	2.175
						2200	2503.2	1872.4	3.9191	3138	2.012
						2250	2566.4	1921.3	3.9474	3464	1.864

Source: Tables T-9 are based on J. H. Keenan and J. Kaye, *Gas Tables*, Wiley, New York, 1945.