Tabla A.3. Capacidades térmicas específicas de gas ideal para gases seleccionados, kJ/kg · K

1. Capacidades térmicas específicas a presión cero de seis gases comunes, donde $k = c_p/c_v$

Temp., K	c_p	c_v	k	c_p	c_v	k	c_p	c_v	k	Temp., K
	Aire			Dióxido de carbono (CO_2)			Monóxido de carbono (CO)			
250	1,003	0,716	1,401	0,791	0,602	1,314	1,039	0,743	1,400	250
300	1,005	0,718	1,400	0,846	0,657	1,288	1,040	0,744	1,399	300
350	1,008	0,721	1,398	0,895	0,706	1,268	1,043	0,746	1,398	350
400	1,013	0,726	1,395	0,939	0,750	1,252	1,047	0,751	1,395	400
450	1,020	0,733	1,391	0,978	0,790	1,239	1,054	0,757	1,392	450
500	1,029	0,742	1,387	1,014	0,825	1,229	1,063	0,767	1,387	500
550	1,040	0,753	1,381	1,046	0,857	1,220	1,075	0,778	1,382	550
600	1,051	0,764	1,376	1,075	0,886	1,213	1,087	0,790	1,376	600
650	1,063	0,776	1,370	1,102	0,913	1,207	1,100	0,803	1,370	650
700	1,075	0,788	1,364	1,126	0,937	1,202	1,113	0,816	1,364	700
750	1,087	0,800	1,359	1,148	0,959	1,197	1,126	0,829	1,358	750
800	1,099	0,812	1,354	1,169	0,980	1,193	1,139	0,842	1,353	800
900	1,121	0,834	1,344	1,204	1,015	1,186	1,163	0,866	1,343	900
1.000	1,142	0,855	1,336	1,234	1,045	1,181	1,185	0,888	1,335	1.000
	Hidrógeno (H_2)			Nitrógeno (N_2)			Oxígeno (O_2)			
250	14,051	9,927	1,416	1,039	0,742	1,400	0,913	0,653	1,398	250
300	14,307	10,183	1,405	1,039	0,743	1,400	0,918	0,658	1,395	300
350	14,427	10,302	1,400	1,041	0,744	1,399	0,928	0,668	1,389	350
400	14,476	10,352	1,398	1,044	0,747	1,397	0,941	0,681	1,382	400
450	14,501	10,377	1,398	1,049	0,752	1,395	0,956	0,696	1,373	450
500	14,513	10,389	1,397	1,056	0,759	1,391	0,972	0,712	1,365	500
550	14,530	10,405	1,396	1,065	0,768	1,387	0,988	0,728	1,358	550
600	14,546	10,422	1,396	1,075	0,778	1,382	1,003	0,743	1,350	600
650	14,571	10,447	1,395	1,086	0,789	1,376	1,017	0,758	1,343	650
700	14,604	10,480	1,394	1,098	0,801	1,371	1,031	0,771	1,337	700
750	14,645	10,521	1,392	1,110	0,813	1,365	1,043	0,783	1,332	750
800	14,695	10,570	1,390	1,121	0,825	1,360	1,054	0,794	1,327	800
900	14,822	10,698	1,385	1,145	0,849	1,349	1,074	0,814	1,319	900
1.000	14,983	10,859	1,380	1,167	0,870	1,341	1,090	0,830	1,313	1.000

FUENTE: Valores adaptados de *Tables of Thermal Properties of Gases,* NBS Circular 564, 1955.

Tabla A.5. Propiedades de gas ideal del aire

(T, K; h y u, kJ/kg; $s°$, kJ/kg · K; el estado estándar es 1 atm)

T	h	p_r	u	v_r	$s°$	T	h	p_r	u	v_r	$s°$
200	199,97	0,3363	142,56	1.707,0	1,29559	460	462,02	6,245	329,97	211,4	2,13407
210	209,97	0,3987	149,69	1.512,0	1,34444	470	472,24	6,742	337,32	200,1	2,15604
220	219,97	0,4690	156,82	1.346,0	1,39105	480	482,49	7,268	344,70	189,5	2,17760
230	230,02	0,5477	164,00	1.205,0	1,43557	490	492,74	7,824	352,08	179,7	2,19876
240	240,02	0,6355	171,13	1.084,0	1,47824	500	503,02	8,411	359,49	170,6	2,21952
250	250,05	0,7329	178,28	979,0	1,51917	510	513,32	9,031	366,92	162,1	2,23993
260	260,09	0,8405	185,45	887,8	1,55848	520	523,63	9,684	374,36	154,1	2,25997
270	270,11	0,9590	192,60	808,0	1,59634	530	533,98	10,37	381,84	146,7	2,27967
280	280,13	1,0889	199,75	738,0	1,63279	540	544,35	11,10	389,34	139,7	2,29906
285	285,14	1,1584	203,33	706,1	1,65055	550	554,74	11,86	396,86	133,1	2,31809
290	290,16	1,2311	206,91	676,1	1,66802	560	565,17	12,66	404,42	127,0	2,33685
295	295,17	1,0368	210,49	647,9	1,68515	570	575,59	13,50	411,97	121,2	2,35531
300	300,19	1,3860	214,07	621,2	1,70203	580	586,04	14,38	419,55	115,7	2,37348
305	305,22	1,4686	217,67	596,0	1,71865	590	596,52	15,31	427,15	110,6	2,39140
310	310,24	1,5546	221,25	572,3	1,73498	600	607,02	16,28	434,78	105,8	2,40902
315	315,27	1,6442	224,85	549,8	1,75106	610	617,53	17,30	442,42	101,2	2,42644
320	320,29	1,7375	228,42	528,6	1,76690	620	628,07	18,36	450,09	96,92	2,44356
325	325,31	1,8345	232,02	508,4	1,78249	630	638,63	19,84	457,78	92,84	2,46048
330	330,34	1,9352	235,61	489,4	1,79783	640	649,22	20,64	465,50	88,99	2,47716
340	340,42	2,149	242,82	454,1	1,82790	650	659,84	21,86	473,25	85,34	2,49364
350	350,49	2,379	250,02	422,2	1,85708	660	670,47	23,13	481,01	81,89	2,50985
360	360,58	2,626	257,24	393,4	1,88543	670	681,14	24,46	488,81	78,61	2,52589
370	370,67	2,892	264,46	367,2	1,91313	680	691,82	25,85	496,62	75,50	2,54175
380	380,77	3,176	271,69	343,4	1,94001	690	702,52	27,29	504,45	72,56	2,55731
390	390,88	3,481	278,93	321,5	1,96633	700	713,27	28,80	512,33	69,76	2,57277
400	400,98	3,806	286,16	301,6	1,99194	710	724,04	30,38	520,23	67,07	2,58810
410	411,12	4,153	293,43	283,3	2,01699	720	734,82	32,02	528,14	64,53	2,60319
420	421,26	4,522	300,69	266,6	2,04142	730	745,62	33,72	536,07	62,13	2,61803
430	431,43	4,915	307,99	251,1	2,06533	740	756,44	35,50	544,02	59,82	2,63280
440	441,61	5,332	315,30	236,8	2,08870	750	767,29	37,35	551,99	57,63	2,64737
450	451,80	5,775	322,62	223,6	2,11161	760	778,18	39,27	560,01	55,54	2,66176

Tabla A.5. *(Continuación)*

T	h	p_r	u	v_r	s^o	T	h	p_r	u	v_r	s^o
780	800,03	43,35	576,12	51,64	2,69013	1.360	1.467,49	399,1	1.077,10	9,780	3,32724
800	821,95	47,75	592,30	48,08	2,71787	1.380	1.491,44	424,2	1.095,26	9,337	3,34474
820	843,98	52,59	608,59	44,84	2,74504	1.400	1.515,42	450,5	1.113,52	8,919	3,36200
840	866,08	57,60	624,95	41,85	2,77170	1.420	1.539,44	478,0	1.131,77	8,526	3,37901
860	888,27	63,09	641,40	39,12	2,79783	1.440	1.563,51	506,9	1.150,13	8,153	3,39586
880	910,56	68,98	657,95	36,61	2,82344	1.460	1.587,63	537,1	1.168,49	7,801	3,41247
900	932,93	75,29	674,58	34,31	2,84856	1.480	1.611,79	568,8	1.186,95	7,468	3,42892
920	955,38	82,05	691,28	32,18	2,87324	1.500	1.635,97	601,9	1.205,41	7,152	3,44516
940	977,92	89,28	708,08	30,22	2,89748	1.520	1.660,23	636,5	1.223,87	6,854	3,46120
960	1.000,55	97,00	725,02	28,40	2,92128	1.540	1.684,51	672,8	1.242,43	6,569	3,47712
980	1.023,25	105,2	741,98	26,73	2,94468	1.560	1.708,82	710,5	1.260,99	6,301	3,49276
1.000	1.046,04	114,0	758,94	25,17	2,96770	1.580	1.733,17	750,0	1.279,65	6,046	3,50829
1.020	1.068,89	123,4	776,10	23,72	2,99034	1.600	1.757,57	791,2	1.298,30	5,804	3,52364
1.040	1.091,85	133,3	793,36	22,39	3,01260	1.620	1.782,00	834,1	1.316,96	5,574	3,53879
1.060	1.114,86	143,9	810,62	21,14	3,03449	1.640	1.806,46	878,9	1.335,72	5,355	3,55381
1.080	1.137,89	155,2	827,88	19,98	3,05608	1.660	1.830,96	925,6	1.354,48	5,147	3,56867
1.100	1.161,07	167,1	845,33	18,896	3,07732	1.680	1.855,50	974,2	1.373,24	4,949	3,58335
1.120	1.184,28	179,7	862,79	17,886	3,09825	1.700	1.880,1	1.025	1.392,7	4,761	3,5979
1.140	1.207,57	193,1	880,35	16,946	3,11883	1.750	1.941,6	1.161	1.439,8	4,328	3,6336
1.160	1.230,92	207,2	897,91	16,064	3,13916	1.800	2.003,3	1.310	1.487,2	3,944	3,6684
1.180	1.254,34	222,2	915,57	15,241	3,15916	1.850	2.065,3	1.475	1.534,9	3,601	3,7023
1.200	1.277,79	238,0	933,33	14,470	3,17888	1.900	2.127,4	1.655	1.582,6	3,295	3,7354
1.220	1.301,13	254,7	951,09	13,747	3,19834	1.950	2.189,7	1.852	1.630,6	3,022	3,7677
1.240	1.324,93	272,3	968,95	13,069	3,21751	2.000	2.252,1	2.068	1.678,7	2,776	3,7994
1.260	1.348,55	290,8	986,90	12,435	3,23638	2.050	2.314,6	2.303	1.726,8	2,555	3,8303
1.280	1.372,24	310,4	1.004,76	11,835	3,25510	2.100	2.377,4	2.559	1.775,3	2,356	3,8605
1.300	1.395,97	330,9	1.022,82	11,275	3,27345	2.150	2.440,3	2.837	1.823,8	2,175	3,8901
1.320	1.419,76	352,5	1.040,88	10,747	3,29160	2.200	2.503,2	3.138	1.872,4	2,012	3,9191
1.340	1.443,60	375,3	1.058,94	10,247	3,30959	2.250	2.566,4	3.464	1.921,3	1,864	3,9474

FUENTE: Adaptado de J. H. Keenan y J. Kaye, «Gas Tables», Wiley, New York, 1945. (Las tablas originales se revisaron en 1983.)