

## Appendix E: Isentropic Flow Table for $\gamma = 1.4$

$M$	$T_0/T$	$p_0/p$	$\rho_0/\rho$	$a_0/a$	$A/A^*$	$\theta$
0.00	1.00000	1.00000	1.00000	1.00000	—	—
0.02	1.00008	1.00028	1.00020	1.00004	28.94213	—
0.04	1.00032	1.00112	1.00080	1.00016	14.48148	—
0.06	1.00072	1.00252	1.00180	1.00036	9.66591	—
0.08	1.00128	1.00449	1.00320	1.00064	7.26161	—
0.10	1.00200	1.00702	1.00501	1.00100	5.82183	—
0.12	1.00288	1.01012	1.00722	1.00144	4.86432	—
0.14	1.00392	1.01379	1.00983	1.00196	4.18240	—
0.16	1.00512	1.01804	1.01285	1.00256	3.67274	—
0.18	1.00648	1.02286	1.01628	1.00323	3.27793	—
0.20	1.00800	1.02828	1.02012	1.00399	2.96352	—
0.22	1.00968	1.03429	1.02438	1.00483	2.70760	—
0.24	1.01152	1.04090	1.02905	1.00574	2.49556	—
0.26	1.01352	1.04813	1.03414	1.00674	2.31729	—
0.28	1.01568	1.05596	1.03966	1.00781	2.16555	—
0.30	1.01800	1.06443	1.04561	1.00896	2.03507	—
0.32	1.02048	1.07353	1.05199	1.01019	1.92185	—
0.34	1.02312	1.08329	1.05881	1.01149	1.82288	—
0.36	1.02592	1.09370	1.06607	1.01288	1.73578	—
0.38	1.02888	1.10478	1.07377	1.01434	1.65870	—
0.40	1.03200	1.11655	1.08193	1.01587	1.59014	—
0.42	1.03528	1.12902	1.09055	1.01749	1.52891	—
0.44	1.03872	1.14221	1.09963	1.01918	1.47401	—
0.46	1.04232	1.15612	1.10918	1.02094	1.42463	—
0.48	1.04608	1.17078	1.11921	1.02278	1.38010	—
0.50	1.05000	1.18621	1.12973	1.02470	1.33984	—
0.52	1.05408	1.20242	1.14073	1.02668	1.30339	—
0.54	1.05832	1.21944	1.15224	1.02875	1.27032	—
0.56	1.06272	1.23727	1.16425	1.03088	1.24029	—
0.58	1.06728	1.25596	1.17678	1.03309	1.21301	—
0.60	1.07200	1.27550	1.18984	1.03537	1.18820	—
0.62	1.07688	1.29594	1.20342	1.03773	1.16565	—
0.64	1.08192	1.31729	1.21755	1.04015	1.14515	—
0.66	1.08712	1.33959	1.23224	1.04265	1.12654	—
0.68	1.09248	1.36285	1.24748	1.04522	1.10966	—
0.70	1.09800	1.38710	1.26330	1.04785	1.09437	—
0.72	1.10368	1.41238	1.27970	1.05056	1.08057	—
0.74	1.10952	1.43871	1.29669	1.05334	1.06814	—
0.76	1.11552	1.46612	1.31430	1.05618	1.05700	—
0.78	1.12168	1.49466	1.33252	1.05909	1.04705	—
0.80	1.12800	1.52434	1.35136	1.06207	1.03823	—
0.82	1.13448	1.55521	1.37086	1.06512	1.03046	—
0.84	1.14112	1.58730	1.39100	1.06823	1.02370	—

$M$	$T_0/T$	$p_0/p$	$\rho_0/\rho$	$a_0/a$	$A/A^*$	$\theta$
0.86	1.14792	1.62065	1.41182	1.07141	1.01787	—
0.88	1.15488	1.65531	1.43332	1.07465	1.01294	—
0.90	1.16200	1.69130	1.45551	1.07796	1.00886	—
0.92	1.16928	1.72868	1.47841	1.08133	1.00560	—
0.94	1.17672	1.76748	1.50204	1.08477	1.00311	—
0.96	1.18432	1.80776	1.52641	1.08826	1.00136	—
0.98	1.19208	1.84956	1.55154	1.09182	1.00034	—
1.00	1.20000	1.89293	1.57744	1.09544	1.00000	—
1.02	1.20808	1.93791	1.60413	1.09913	1.00033	0.12568
1.04	1.21632	1.98457	1.63162	1.10287	1.00130	0.35097
1.06	1.22472	2.03296	1.65994	1.10667	1.00291	0.63668
1.08	1.23328	2.08313	1.68909	1.11053	1.00512	0.96803
1.10	1.24200	2.13513	1.71911	1.11445	1.00793	1.33619
1.12	1.25088	2.18904	1.75000	1.11843	1.01131	1.73503
1.14	1.25992	2.24492	1.78179	1.12246	1.01527	2.15994
1.16	1.26912	2.30281	1.81450	1.12655	1.01978	2.60733
1.18	1.27848	2.36281	1.84814	1.13070	1.02484	3.07424
1.20	1.28800	2.42496	1.88274	1.13490	1.03044	3.55822
1.22	1.29768	2.48935	1.91831	1.13916	1.03657	4.05718
1.24	1.30752	2.55605	1.95488	1.14347	1.04323	4.56934
1.26	1.31752	2.62512	1.99247	1.14783	1.05041	5.09313
1.28	1.32768	2.69666	2.03111	1.15225	1.05810	5.62717
1.30	1.33800	2.77074	2.07081	1.15672	1.06630	6.17026
1.32	1.34848	2.84744	2.11160	1.16124	1.07502	6.72131
1.34	1.35912	2.92686	2.15350	1.16581	1.08424	7.27934
1.36	1.36992	3.00907	2.19653	1.17044	1.09396	7.84348
1.38	1.38088	3.09418	2.24073	1.17511	1.10419	8.41294
1.40	1.39200	3.18227	2.28611	1.17983	1.11493	8.98700
1.42	1.40328	3.27344	2.33271	1.18460	1.12616	9.56499
1.44	1.41472	3.36780	2.38054	1.18942	1.13790	10.14633
1.46	1.42632	3.46544	2.42964	1.19429	1.15015	10.73047
1.48	1.43808	3.56648	2.48003	1.19920	1.16290	11.31691
1.50	1.45000	3.67103	2.53174	1.20416	1.17617	11.90518
1.52	1.46208	3.77919	2.58480	1.20916	1.18994	12.49486
1.54	1.47432	3.89108	2.63924	1.21422	1.20423	13.08557
1.56	1.48672	4.00683	2.69508	1.21931	1.21904	13.67693
1.58	1.49928	4.12657	2.75237	1.22445	1.23438	14.26862
1.60	1.51200	4.25041	2.81112	1.22963	1.25023	14.86032
1.62	1.52488	4.37849	2.87137	1.23486	1.26662	15.45177
1.64	1.53792	4.51094	2.93315	1.24013	1.28355	16.04268
1.66	1.55112	4.64791	2.99649	1.24544	1.30102	16.63282
1.68	1.56448	4.78954	3.06143	1.25079	1.31904	17.22195
1.70	1.57800	4.93598	3.12800	1.25618	1.33761	17.80988
1.72	1.59168	5.08738	3.19624	1.26162	1.35673	18.39640
1.74	1.60552	5.24390	3.26617	1.26709	1.37643	18.98134
1.76	1.61952	5.40569	3.33784	1.27260	1.39670	19.56453
1.78	1.63368	5.57293	3.41128	1.27815	1.41754	20.14580
1.80	1.64800	5.74578	3.48652	1.28374	1.43898	20.72503

$M$	$T_0/T$	$p_0/p$	$\rho_0/\rho$	$a_0/a$	$A/A^*$	$\theta$
1.82	1.66248	5.92443	3.56361	1.28937	1.46101	21.30208
1.84	1.67712	6.10905	3.64258	1.29504	1.48365	21.87682
1.86	1.69192	6.29982	3.72348	1.30074	1.50689	22.44914
1.88	1.70688	6.49695	3.80633	1.30648	1.53076	23.01893
1.90	1.72200	6.70062	3.89119	1.31225	1.55525	23.58610
1.92	1.73728	6.91104	3.97808	1.31806	1.58039	24.15056
1.94	1.75272	7.12841	4.06706	1.32390	1.60617	24.71223
1.96	1.76832	7.35296	4.15816	1.32978	1.63261	25.27102
1.98	1.78408	7.58489	4.25143	1.33569	1.65971	25.82688
2.00	1.80000	7.82443	4.34691	1.34164	1.68750	26.37973
2.02	1.81608	8.07182	4.44464	1.34762	1.71597	26.92952
2.04	1.83232	8.32729	4.54467	1.35363	1.74514	27.47619
2.06	1.84872	8.59109	4.64705	1.35968	1.77501	28.01970
2.08	1.86528	8.86346	4.75181	1.36575	1.80561	28.56000
2.10	1.88200	9.14466	4.85902	1.37186	1.83694	29.09705
2.12	1.89888	9.43497	4.96870	1.37800	1.86901	29.63082
2.14	1.91592	9.73464	5.08092	1.38417	1.90184	30.16127
2.16	1.93312	10.04396	5.19573	1.39037	1.93543	30.68838
2.18	1.95048	10.36321	5.31316	1.39660	1.96981	31.21212
2.20	1.96800	10.69268	5.43328	1.40285	2.00497	31.73247
2.22	1.98568	11.03269	5.55613	1.40914	2.04094	32.24940
2.24	2.00352	11.38352	5.68177	1.41546	2.07773	32.76291
2.26	2.02152	11.74551	5.81024	1.42180	2.11535	33.27298
2.28	2.03968	12.11898	5.94161	1.42817	2.15381	33.77961
2.30	2.05800	12.50425	6.07593	1.43457	2.19313	34.28276
2.32	2.07648	12.90167	6.21325	1.44100	2.23332	34.78246
2.34	2.09512	13.31159	6.35362	1.44745	2.27440	35.27868
2.36	2.11392	13.73437	6.49711	1.45393	2.31638	35.77143
2.38	2.13288	14.17037	6.64378	1.46044	2.35927	36.26070
2.40	2.15200	14.61998	6.79368	1.46697	2.40310	36.74650
2.42	2.17128	15.08357	6.94686	1.47353	2.44787	37.22883
2.44	2.19072	15.56155	7.10340	1.48011	2.49360	37.70769
2.46	2.21032	16.05432	7.26335	1.48671	2.54031	38.18309
2.48	2.23008	16.56228	7.42677	1.49334	2.58801	38.65504
2.50	2.25000	17.08589	7.59373	1.50000	2.63671	39.12354
2.52	2.27008	17.62555	7.76429	1.50668	2.68645	39.58859
2.54	2.29032	18.18174	7.93852	1.51338	2.73722	40.05023
2.56	2.31072	18.75488	8.11647	1.52010	2.78906	40.50844
2.58	2.33128	19.34557	8.29822	1.52685	2.84197	40.96326
2.60	2.35200	19.95397	8.48384	1.53362	2.89597	41.41468
2.62	2.37288	20.58088	8.67338	1.54041	2.95108	41.86272
2.64	2.39392	21.22670	8.86693	1.54723	3.00733	42.30741
2.66	2.41512	21.89194	9.06454	1.55406	3.06471	42.74874
2.68	2.43648	22.57712	9.26630	1.56092	3.12327	43.18676
2.70	2.45800	23.28280	9.47226	1.56780	3.18300	43.62145
2.72	2.47968	24.00952	9.68251	1.57470	3.24394	44.05285
2.74	2.50152	24.75783	9.89712	1.58162	3.30611	44.48097
2.76	2.52352	25.52832	10.11617	1.58856	3.36951	44.90583

$M$	$T_0/T$	$p_0/p$	$\rho_0/\rho$	$a_0/a$	$A/A^*$	$\theta$
2.78	2.54568	26.32158	10.33971	1.59552	3.43417	45.32746
2.80	2.56800	27.13821	10.56785	1.60250	3.50012	45.74586
2.82	2.59048	27.97882	10.80064	1.60950	3.56736	46.16106
2.84	2.61312	28.84406	11.03818	1.61651	3.63593	46.57309
2.86	2.63592	29.73455	11.28053	1.62355	3.70583	46.98195
2.88	2.65888	30.65097	11.52778	1.63061	3.77711	47.38768
2.90	2.68200	31.59398	11.78002	1.63768	3.84976	47.79028
2.92	2.70528	32.56427	12.03731	1.64477	3.92382	48.18980
2.94	2.72872	33.56255	12.29975	1.65188	3.99931	48.58624
2.96	2.75232	34.58954	12.56742	1.65901	4.07625	48.97962
2.98	2.77608	35.64597	12.84041	1.66616	4.15465	49.36997
3.00	2.80000	36.73260	13.11880	1.67332	4.23456	49.75732
3.05	2.86050	39.58634	13.83897	1.69130	4.44101	50.71267
3.10	2.92200	42.64609	14.59484	1.70938	4.65730	51.64972
3.15	2.98450	45.92497	15.38784	1.72757	4.88382	52.56881
3.20	3.04800	49.43684	16.21945	1.74585	5.12095	53.47031
3.25	3.11250	53.19626	17.09119	1.76423	5.36908	54.35457
3.30	3.17800	57.21857	18.00460	1.78269	5.62863	55.22195
3.35	3.24450	61.51989	18.96131	1.80125	5.90002	56.07281
3.40	3.31200	66.11720	19.96294	1.81989	6.18368	56.90749
3.45	3.38050	71.02834	21.01122	1.83861	6.48006	57.72636
3.50	3.45000	76.27200	22.10785	1.85742	6.78960	58.52974
3.55	3.52050	81.86787	23.25464	1.87630	7.11279	59.31799
3.60	3.59200	87.83657	24.45342	1.89526	7.45009	60.09143
3.65	3.66450	94.19976	25.70606	1.91429	7.80201	60.85041
3.70	3.73800	100.98010	27.01450	1.93339	8.16905	61.59526
3.75	3.81250	108.20136	28.38072	1.95256	8.55172	62.32627
3.80	3.88800	115.88843	29.80673	1.97180	8.95056	63.04378
3.85	3.96449	124.06740	31.29463	1.99110	9.36612	63.74809
3.90	4.04199	132.76549	32.84652	2.01047	9.79895	64.43950
3.95	4.12049	142.01132	34.46462	2.02990	10.24962	65.11831
4.00	4.19999	151.83458	36.15113	2.04939	10.71872	65.78480
4.05	4.28050	162.26674	37.90839	2.06894	11.20686	66.43929
4.10	4.36200	173.34019	39.73871	2.08854	11.71464	67.08201
4.15	4.44450	185.08888	41.64447	2.10820	12.24269	67.71326
4.20	4.52800	197.54826	43.62813	2.12791	12.79166	68.33328
4.25	4.61250	210.75545	45.69219	2.14767	13.36219	68.94234
4.30	4.69801	224.74889	47.83920	2.16749	13.95495	69.54070
4.35	4.78451	239.56898	50.07181	2.18735	14.57063	70.12859
4.40	4.87201	255.25769	52.39268	2.20726	15.20995	70.70626
4.45	4.96051	271.85855	54.80452	2.22722	15.87359	71.27394
4.50	5.05001	289.41721	57.31017	2.24722	16.56231	71.83186
4.60	5.23202	327.59915	62.61428	2.28736	18.01796	72.91930
4.70	5.41802	370.20587	68.32857	2.32766	19.58304	73.97028
4.80	5.60803	417.67252	74.47759	2.36813	21.26398	74.98645
4.90	5.80203	470.46896	81.08690	2.40874	23.06745	75.96935
5.00	6.00004	529.10193	88.18307	2.44950	25.00039	76.92043
5.10	6.20204	594.11725	95.79376	2.49039	27.07004	77.84109

$M$	$T_0/T$	$p_0/p$	$\rho_0/\rho$	$a_0/a$	$A/A^*$	$\theta$
5.20	6.40805	666.10211	103.94769	2.53141	29.28389	78.73267
5.30	6.61806	745.68719	112.67464	2.57256	31.64971	79.59642
5.40	6.83206	833.54962	122.00555	2.61382	34.17557	80.43350
5.50	7.05007	930.41510	131.97247	2.65520	36.86984	81.24507