

8. BUHAR TABLOLARI

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**TABLO –1: DOYGUN SU /BUHAR– SICAKLIK
TABLOSU, METRİK BİRİMLER**

([Ref. e makaleleri](#))

T, °C	P, MPa	Hacim, m ³ /kg		Enerji, kJ/kg		Enthalpi, kJ/kg			Entropi, kJ/(kg-K)		
		v _f	v _g	u _f	u _g	h _f	h _{fg}	h _g	s _f	s _{fg}	s _g
0.010	0.000611	0.001000	206.1	0.0	2375.3	0.0	2501.3	2501.3	0.0000	9.1571	9.1571
5	0.000872	0.001000	147.1	21.0	2382.2	21.0	2489.5	2510.5	0.0761	8.9505	9.0266
10	0.001228	0.001000	106.4	42.0	2389.2	42.0	2477.7	2519.7	0.1510	8.7506	8.9016
20	0.002338	0.001002	57.79	83.9	2402.9	83.9	2454.2	2538.1	0.2965	8.3715	8.6680
30	0.004246	0.001004	32.90	125.8	2416.6	125.8	2430.4	2556.2	0.4367	8.0174	8.4541
40	0.007383	0.001008	19.52	167.5	2430.1	167.5	2406.8	2574.3	0.5723	7.6855	8.2578
50	0.01235	0.001012	12.03	209.3	2443.5	209.3	2382.8	2592.1	0.7036	7.3735	8.0771
60	0.01994	0.001017	7.671	251.1	2456.6	251.1	2358.5	2609.6	0.8310	7.0794	7.9104
70	0.03119	0.001023	5.042	292.9	2469.5	293.0	2333.8	2626.8	0.9549	6.8012	7.7561
80	0.04739	0.001029	3.407	334.8	2482.2	334.9	2308.8	2643.7	1.0754	6.5376	7.6130
90	0.07013	0.001036	2.361	376.8	2494.5	376.9	2283.2	2660.1	1.1927	6.2872	7.4799
100	0.1013	0.001044	1.673	418.9	2506.5	419.0	2257.0	2676.0	1.3071	6.0486	7.3557
120	0.1985	0.001060	0.8919	503.5	2529.2	503.7	2202.6	2706.3	1.5280	5.6024	7.1304
140	0.3613	0.001080	0.5089	588.7	2550.0	589.1	2144.8	2733.9	1.7395	5.1912	6.9307
160	0.6178	0.001102	0.3071	674.9	2568.4	675.5	2082.6	2758.1	1.9431	4.8079	6.7510
180	1.002	0.001127	0.1941	762.1	2583.7	763.2	2015.0	2778.2	2.1400	4.4466	6.5866
200	1.554	0.001156	0.1274	850.6	2595.3	852.4	1940.8	2793.2	2.3313	4.1018	6.4331
220	2.318	0.001190	0.08620	940.9	2602.4	943.6	1858.5	2802.1	2.5183	3.7686	6.2869
240	3.344	0.001229	0.5977	1033.2	2604.0	1037.3	1766.5	2803.8	2.7021	3.4425	6.1446
260	4.688	0.001276	0.04221	1128.4	2599.0	1134.4	1662.5	2796.9	2.8844	3.1184	6.0028
280	6.411	0.001332	0.03017	1227.4	2586.1	1236.0	1543.6	2779.6	3.0674	2.7905	5.8579
300	8.580	0.001404	0.02168	1332.0	2563.0	1344.0	1405.0	2749.0	3.2540	2.4513	5.7053
320	11.27	0.001499	0.01549	1444.6	2525.5	1461.4	1238.7	2700.1	3.4487	2.0883	5.5370
340	14.59	0.001638	0.01080	1570.3	2464.6	1594.2	1027.9	2622.1	3.6601	1.6765	5.3366
360	18.65	0.001892	0.006947	1725.2	2351.6	1760.5	720.7	2481.2	3.9154	1.1382	5.0536
374.136	22.088	0.003155	0.003155	2029.6	2029.6	2099.3	0.0	2099.3	4.4305	0.0000	4.4305

DOYGUN SU / BUHAR– BASINÇ TABLOSU, METRİK BİRİMLER

P, MPa	T, °C	Hacim, m ³ /kg		Enerji, kJ/kg		Enthalpi, kJ/kg			Entropi, kJ/(kg-K)		
		v _f	v _g	u _f	u _g	h _f	h _{fg}	h _g	s _f	s _{fg}	s _g
0.001	7.00	0.001000	129.2	29.3	2385.0	29.3	2484.9	2514.2	0.1059	8.8706	8.9765
0.002	17.50	0.001001	67.00	73.5	2399.5	73.5	2460.0	2533.5	0.2606	8.4639	8.7245
0.01	45.80	0.001010	14.67	191.8	2437.9	191.8	2392.8	2584.6	0.6491	7.5019	8.1510
0.02	60.10	0.001017	7.649	251.4	2456.7	251.4	2358.3	2609.7	0.8319	7.0774	7.9093
0.04	75.90	0.001026	3.993	317.5	2477.0	317.6	23191.0	2636.7	1.0260	6.6449	7.6709
0.06	85.90	0.001033	2.732	359.8	2489.6	359.8	2293.7	2653.5	1.1455	6.3873	7.5328
0.08	93.50	0.001039	2.087	391.6	2498.8	391.6	2274.1	2665.7	1.2331	6.2023	7.4354
0.10	99.60	0.001043	1.694	417.3	2506.1	417.4	2258.1	2675.5	1.3029	6.0573	7.3602
0.12	104.80	0.001047	1.428	439.2	2512.1	439.3	2244.2	2683.5	1.3611	5.9378	7.2989
0.16	113.30	0.001054	1.091	475.2	2521.8	475.3	2221.2	2696.5	1.4553	5.7472	7.2025
0.2	120.20	0.001061	0.8857	504.5	2529.5	504.7	2201.9	2706.6	1.5305	5.5975	7.1280
0.4	143.60	0.001084	0.4625	604.3	2553.6	604.7	2133.8	2738.5	1.7770	5.1197	6.8967
0.6	158.90	0.001101	0.3157	669.9	2567.4	670.6	2086.2	2756.8	1.9316	4.8293	6.7609
0.8	170.40	0.001115	0.2404	720.2	2576.8	721.1	2048.0	2769.1	2.0466	4.6170	6.6636
1.0	179.90	0.001127	0.1944	761.7	2583.6	762.8	2015.3	2778.1	2.1391	4.4482	6.5873
1.2	188.00	0.001139	0.1633	797.3	2588.8	798.6	1986.2	2784.8	2.2170	4.3072	6.5242
1.6	201.40	0.001159	0.1238	856.9	2596.0	858.8	1935.2	2794.0	2.3446	4.0780	6.4226
2	212.40	0.001177	0.09963	906.4	2600.3	908.8	1890.7	2799.5	2.4478	3.8939	6.3417
4	250.40	0.001252	0.04978	1082.3	2602.3	1087.3	1714.1	2801.4	2.7970	3.2739	6.0709
6	275.60	0.001319	0.03244	1205.4	2589.7	1213.3	1571.0	2784.3	3.0273	2.8627	5.8900
8	295.10	0.001384	0.02352	1305.6	2569.8	1316.6	1441.4	2758.0	3.2075	2.5365	5.7440
12	324.80	0.001527	0.01426	1472.9	2513.7	1491.3	1193.6	2684.9	3.4970	1.9963	5.4933
16	347.40	0.001711	0.009307	1622.7	2431.8	1650.0	930.7	2580.7	3.7468	1.4996	5.2464
20	365.80	0.002036	0.005836	1785.6	2293.2	1826.3	583.7	2410.0	4.0146	0.9135	4.9281
22.088	374.136	0.003155	0.003155	2029.6	2029.6	2099.3	0.0	2099.3	4.4305	0.0000	4.4305

KIZGIN BUHAR – METRİK BİRİMLER

°C	P = 0.010 MPa				P = 0.050 MPa				P = 0.10 MPa			
	v	u	h	s	v	u	h	s	v	u	h	s
100	17.196	2515.5	2687.5	8.4479	3.418	2511.6	2682.5	7.6947	1.6958	2506.7	2676.2	7.3614
200	21.825	2661.3	2879.5	8.9038	4.356	2659.9	2877.7	8.1580	2.172	2658.1	2875.3	7.8343
300	26.445	2812.1	3076.5	9.2813	5.284	2811.3	3075.5	8.5373	2.639	2810.4	3074.3	8.2158
400	31.063	2968.9	3279.6	9.6077	6.209	2968.5	3278.9	8.8642	3.103	2967.9	3278.2	8.5435
500	35.679	3132.3	3489.1	9.8978	7.134	3132.0	3488.7	9.1546	3.565	3131.6	3488.1	8.8342
600	40.295	3302.5	3705.4	10.1608	8.057	3302.2	3705.1	9.4178	4.028	3301.9	3704.7	9.0976
700	44.911	3479.6	3928.7	10.4028	8.981	3479.4	3928.5	9.6599	4.490	3479.2	3928.2	9.3398
800	49.526	3663.8	4159.0	10.6281	9.904	3663.6	4158.9	9.8852	4.952	3663.5	4158.6	9.5652
900	54.141	3855.0	4396.4	10.8396	10.828	3854.9	4396.3	10.0967	5.414	3854.8	4396.1	9.7767
1000	58.757	4053.0	4640.6	11.0393	11.751	4052.9	4640.5	10.2964	5.875	4052.8	4640.3	9.9764

°C	P = 0.20 MPa				P = 0.40 MPa				P = 0.60 MPa			
	v	u	h	s	v	u	h	s	v	u	h	s
200	1.080	2654.4	2870.5	7.5066	0.5342	2646.8	2860.5	7.1706	0.3520	2638.9	2850.1	6.9665
300	1.316	2808.6	3071.8	7.8926	0.6548	2804.8	3066.8	7.5662	0.4344	2801.0	3061.6	7.3724
400	1.549	2966.7	3276.6	8.2218	0.7726	2964.4	3273.4	7.8985	0.5137	2962.1	3270.3	7.7079
500	1.781	3130.8	3487.1	8.5133	0.8893	3129.2	3484.9	8.1913	0.5920	3127.6	3482.8	8.0021
600	2.013	3301.4	3704.0	8.7770	1.0055	3300.2	3702.4	8.4558	0.6697	3299.1	3700.9	8.2674
700	2.244	3478.8	3927.6	9.0194	1.1215	3477.9	3926.5	8.6987	0.7472	3477.0	3925.3	8.5107
800	2.475	3663.1	4158.2	9.2449	1.2372	3662.4	4157.3	8.9244	0.8245	3661.8	4156.5	8.7367
900	2.706	3854.5	4395.8	9.4566	1.3529	3853.9	4395.1	9.1362	0.9017	3853.4	4394.4	8.9486
1000	2.937	4052.5	4640.0	9.6563	1.4685	4052.0	4639.4	9.3360	0.9788	4051.5	4638.8	9.1485
1100	3.168	4257.0	4890.7	9.8458	1.5840	4256.5	4890.2	9.5256	1.0559	4256.1	4889.6	9.3381

°C	P = 0.80 MPa				P = 1.00 MPa				P = 2.00 MPa			
	v	u	h	s	v	u	h	s	v	u	h	s
200	0.2608	2630.6	2839.3	6.8158	0.2060	2621.9	2827.9	6.6940	-	-	-	-
300	0.3241	2797.2	3056.5	7.2328	0.2579	2793.2	3051.2	7.1229	0.1255	2772.6	3023.5	6.7664
400	0.3843	2959.7	3267.1	7.5716	0.3066	2957.3	3263.9	7.4651	0.1512	2945.2	3247.6	7.1271
500	0.4433	3126.0	3480.6	7.8673	0.3541	3124.4	3478.5	7.7622	0.1757	3116.2	3467.6	7.4317
600	0.5018	3297.9	3699.4	8.1333	0.4011	3296.8	3697.9	8.0290	0.1996	3290.9	3690.1	7.7024
700	0.5601	3476.2	3924.2	8.3770	0.4478	3475.3	3923.1	8.2731	0.2232	3470.9	3917.4	7.9487
800	0.6181	3661.1	4155.6	8.6033	0.4943	3660.4	4154.7	8.4996	0.2467	3657.0	4150.3	8.1765
900	0.6761	3852.8	4393.7	8.8153	0.5407	3852.2	4392.9	8.7118	0.2700	3849.3	4389.4	8.3895
1000	0.7340	4051.0	4638.2	9.0153	0.5871	4050.5	4637.6	8.9119	0.2933	4048.0	4634.6	8.5901
1100	0.7919	4255.6	4889.1	9.2050	0.6335	4255.1	4888.6	9.1017	0.3166	4252.7	4885.9	8.7800

TABLO – 3 (DEVAM)

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KIZGIN BUHAR – METRİK BİRİMLER

°C	P = 3.0 MPa				P = 4.0 MPa				P = 5.0 MPa			
	v	u	h	s	v	u	h	s	v	u	h	s
300	0.08114	2750.1	2993.5	6.5390	0.05884	2725.3	2960.7	6.3615	0.04532	2698.0	2924.5	6.2084
400	0.09936	2932.8	3230.9	6.9212	0.07341	2919.9	3213.6	6.7690	0.05781	2906.6	3195.7	6.6459
500	0.11619	3108.0	3456.5	7.2338	0.08643	3099.5	3445.3	7.0901	0.06857	3091.0	3433.8	6.9759
600	0.13243	3285.0	3682.3	7.5085	0.09885	3279.1	3674.4	7.3688	0.07869	3273.0	3666.5	7.2589
700	0.14838	3466.5	3911.7	7.7571	0.11095	3462.1	3905.9	7.6198	0.08849	3457.6	3900.1	7.5122
800	0.16414	3653.5	4145.9	7.9862	0.12287	3650.0	4141.5	7.8502	0.09811	3646.6	4137.1	7.7440
900	0.17980	3846.5	4385.9	8.1999	0.13469	3843.6	4382.3	8.0647	0.10762	3840.7	4378.8	7.9593
1000	0.19541	4045.4	4631.6	8.4009	0.14645	4042.9	4628.7	8.2662	0.11707	4040.4	4625.7	8.1612
1100	0.21098	4250.3	4883.3	8.5912	0.15817	4248.0	4880.6	8.4567	0.12648	4245.6	4878.0	8.3520
1200	0.22652	4460.9	5140.5	8.7720	0.16987	4458.6	5138.1	8.6376	0.13587	4456.3	5135.7	8.5331

°C	P = 6.0 MPa				P = 8.0 MPa				P = 10.0 MPa			
	v	u	h	s	v	u	h	s	v	u	h	s
300	0.03616	2667.2	2884.2	6.0674	0.02426	2590.9	2785.0	5.7906	-	-	-	-
400	0.04739	2892.9	3177.2	6.5408	0.03432	2863.8	3138.3	6.3634	0.02641	2832.4	3096.5	6.2120
500	0.05665	3082.2	3422.2	6.8803	0.04175	3064.3	3398.3	6.7240	0.03279	3045.8	3373.7	6.5966
600	0.06525	3266.9	3658.4	7.1677	0.04845	3254.4	3642.0	7.0206	0.03837	3241.7	3625.3	6.9029
700	0.07352	3453.1	3894.2	7.4234	0.05481	3443.9	3882.4	7.2812	0.04358	3434.7	3870.5	7.1687
800	0.08160	3643.1	4132.7	7.6566	0.06097	3636.0	4123.8	7.5173	0.04859	3628.9	4114.8	7.4077
900	0.08958	3837.8	4375.3	7.8727	0.06702	3832.1	4368.3	7.7351	0.05349	3826.3	4361.2	7.6272
1000	0.09749	4037.8	4622.7	8.0751	0.07301	4032.8	4616.9	7.9384	0.05832	4027.8	4611.0	7.8315
1100	0.10536	4243.3	4875.4	8.2661	0.07896	4238.6	4870.3	8.1300	0.06312	4234.0	4865.1	8.0237
1200	0.11321	4454.0	5133.3	8.4474	0.08489	4449.5	5128.5	8.3115	0.06789	4444.9	5123.8	8.2055

°C	P = 15.0 MPa				P = 20.0 MPa				P = 40.0 MPa			
	v	u	h	s	v	u	h	s	v	u	h	s
400	0.01564	2740.7	2975.5	5.8811	0.00994	2619.3	2818.1	5.5540	0.001908	1854.6	1930.9	4.1135
500	0.02080	2996.6	3308.6	6.3443	0.01477	2942.9	3238.2	6.1401	0.005622	2678.4	2903.3	5.4700
600	0.02491	3208.6	3582.3	6.6776	0.01818	3174.0	3537.6	6.5048	0.008094	3022.6	3346.4	6.0114
700	0.02861	3410.9	3840.1	6.9572	0.02113	3386.4	3809.0	6.7993	0.009941	3283.6	3681.2	6.3750
800	0.03210	3610.9	4092.4	7.2040	0.02385	3592.7	4069.7	7.0544	0.011523	3517.8	3978.7	6.6662
900	0.03546	3811.9	4343.8	7.4279	0.02645	3797.5	4326.4	7.2830	0.012962	3739.4	4257.9	6.9150
1000	0.03875	4015.4	4596.6	7.6348	0.02897	4003.1	4582.5	7.4925	0.014324	3954.6	4527.6	7.1356
1100	0.04200	4222.6	4852.6	7.8283	0.03145	4211.3	4840.2	7.6874	0.015642	4167.4	4793.1	7.3364
1200	0.04523	4433.8	5112.3	8.0108	0.03391	4422.8	5101.0	7.8707	0.016940	4380.1	5057.7	7.5224

TABLO – 4

DOYGUN SU / BUHAR– SICAKLIK TABLOSU, İNGİLİZ BİRİMLERİ

T, °F	P, psia	Volume, ft ³ /lb _m		Energy, BTU/lb _m		Enthalpy, BTU/lb _m			Entropy, BTU/(lb _m -°R)		
		v _f	v _g	u _f	u _g	h _f	h _{fg}	h _g	s _f	s _{fg}	s _g
32.018	0.08866	0.016022	3302	0	1021.2	0.01	1075.4	1075.4	0.00000	2.1869	2.1869
40	0.12166	0.016020	2445	8.02	1023.9	8.02	1070.9	1078.9	0.01617	2.1430	2.1592
60	0.2563	0.016035	1206.9	28.08	1030.4	28.08	1059.6	1087.7	0.05555	2.0388	2.0943
80	0.5073	0.016073	632.8	48.08	1037.0	48.09	1048.3	1096.4	0.09332	1.9423	2.0356
100	0.9503	0.016130	350.0	68.04	1043.5	68.05	1037.0	1105.0	0.12963	1.8526	1.9822
120	1.6945	0.016205	203.0	87.99	1049.9	88.00	1025.5	1113.5	0.16465	1.7690	1.9336
140	2.892	0.016293	122.88	107.95	1056.2	107.96	1014.0	1121.9	0.19851	1.6907	1.8892
160	4.745	0.016395	77.23	127.94	1062.3	127.96	1002.2	1130.1	0.23130	1.6171	1.8484
180	7.515	0.016509	50.20	147.97	1068.3	147.99	990.2	1138.2	0.26311	1.5478	1.8109
200	11.529	0.016634	33.63	168.04	1074.2	168.07	977.9	1145.9	0.29400	1.4822	1.7762
212	14.698	0.016716	26.80	180.11	1077.6	180.16	970.3	1150.5	0.31213	1.4446	1.7567
220	17.188	0.016772	23.15	188.17	1079.8	188.22	965.3	1153.5	0.32406	1.4201	1.7441
240	24.97	0.016922	16.327	208.36	1085.3	208.44	952.3	1160.7	0.35335	1.3609	1.7143
260	35.42	0.017084	11.768	228.64	1090.5	228.76	938.8	1167.6	0.38193	1.3044	1.6864
280	49.18	0.017259	8.650	249.02	1095.4	249.18	924.9	1174.1	0.40986	1.2504	1.6602
300	66.98	0.017448	6.472	269.52	1100.0	269.73	910.4	1180.2	0.43720	1.1984	1.6356
340	117.93	0.017872	3.792	310.91	1108.0	311.30	879.5	1190.8	0.49031	1.0997	1.5901
380	195.60	0.018363	2.339	352.95	1114.3	353.62	845.4	1199.0	0.54163	1.0067	1.5483
420	308.5	0.018936	1.5024	395.81	1118.3	396.89	807.2	1204.1	0.59152	0.9175	1.5091
460	466.3	0.019614	0.9961	439.7	1119.6	441.4	764.1	1205.5	0.6404	0.8308	1.4712
500	680.0	0.02043	0.6761	485.1	1117.4	487.7	714.8	1202.5	0.6888	0.7448	1.4335
540	961.5	0.02145	0.4658	532.6	1111.0	536.4	657.5	1193.8	0.7374	0.6576	1.3950
580	1324.3	0.02278	0.3225	583.1	1098.9	588.6	589.3	1178.0	0.7872	0.5668	1.3540
620	1784.4	0.02465	0.2209	638.3	1078.5	646.4	505.0	1151.4	0.8398	0.4677	1.3075
660	2362	0.02767	0.14459	702.3	1042.3	714.4	391.1	1105.5	0.8990	0.3493	1.2483
700	3090	0.03666	0.07438	801.7	947.7	822.7	167.5	990.2	0.9902	0.1444	1.1346
705.44	3204	0.05053	0.05053	872.6	872.6	902.5	0.0	902.5	1.0580	0	1.0580

TABLO – 5

6

DOYGUN SU / BUHAR– BASINÇ TABLOSU, İNGİLİZ BİRİMLERİ

		Volume, ft ³ /lb _m		Energy, BTU/lb _m		Enthalpy, BTU/lb _m			Entropy, BTU/(lb _m -°R)		
P, psia	T, °F	v _f	v _g	u _f	u _g	h _f	h _{fg}	h _g	s _f	s _{fg}	s _g
1.0	101.70	0.016136	333.60	69.74	1044.0	69.74	1036.0	1105.8	0.13266	1.8453	1.9779
2.0	126.04	0.016230	173.75	94.02	1051.8	94.02	1022.1	1116.1	0.17499	1.7448	1.9198
4.0	152.93	0.016358	90.64	120.88	1060.2	120.89	1006.4	1127.3	0.21983	1.6426	1.8624
6.0	170.03	0.016451	61.98	137.98	1065.4	138.00	996.2	1134.2	0.24736	1.5819	1.8292
10	193.19	0.016590	38.42	161.20	1072.2	161.23	982.1	1143.3	0.28358	1.5041	1.7877
14.696	211.99	0.016715	26.80	180.10	1077.6	180.15	970.4	1150.5	0.31212	1.4446	1.7567
20	227.96	0.016830	20.09	196.19	1082.0	196.26	960.1	1156.4	0.33580	1.3962	1.7320
30	250.34	0.017004	13.748	218.84	1088.0	218.93	945.4	1164.3	0.36821	1.3314	1.6996
40	267.26	0.017146	10.501	236.03	1092.3	236.16	933.8	1170.0	0.39214	1.2845	1.6767
50	281.03	0.017269	8.518	250.08	1095.6	250.24	924.2	1174.4	0.41129	1.2476	1.6589
60	292.73	0.017378	7.177	262.06	1098.3	262.25	915.8	1178.0	0.42733	1.2170	1.6444
70	302.96	0.017478	6.209	272.56	1100.6	272.79	908.3	1181.0	0.44120	1.1909	1.6321
80	312.07	0.017570	5.474	281.95	1102.6	282.21	901.4	1183.6	0.45344	1.1679	1.6214
90	320.31	0.017655	4.898	290.46	1104.3	290.76	895.1	1185.9	0.46442	1.1475	1.6119
100	327.86	0.017736	4.434	298.28	1105.8	298.61	889.2	1187.8	0.47439	1.1290	1.6034
120	341.30	0.017886	3.730	312.27	1108.3	312.67	878.5	1191.1	0.49201	1.0966	1.5886
140	353.08	0.018024	3.221	324.58	1110.3	325.05	868.7	1193.8	0.50727	1.0688	1.5761
160	363.60	0.018152	2.836	335.63	1112.0	336.16	859.8	1196.0	0.52078	1.0443	1.5651
180	373.13	0.018273	2.533	345.68	1113.4	346.29	851.5	1197.8	0.53292	1.0223	1.5553
200	381.86	0.018387	2.289	354.9	1114.6	355.6	843.7	1199.3	0.5440	1.0025	1.5464
300	417.43	0.018896	1.5442	393.0	1118.2	394.1	809.8	1203.9	0.5883	0.9232	1.5115
400	444.70	0.019340	1.1620	422.8	1119.5	424.2	781.2	1205.5	0.6218	0.8638	1.4856
500	467.13	0.019748	0.9283	447.7	1119.4	449.5	755.8	1205.3	0.6490	0.8154	1.4645
600	486.33	0.02013	0.7702	469.4	1118.6	471.7	732.4	1204.1	0.6723	0.7742	1.4464
800	518.36	0.02087	0.5691	506.6	1115.0	509.7	689.6	1199.3	0.7110	0.7050	1.4160
1000	544.75	0.02159	0.4459	538.4	1109.9	542.4	650.0	1192.4	0.7432	0.6471	1.3903
1400	587.25	0.02307	0.3016	592.7	1096.0	598.6	575.5	1174.1	0.7964	0.5497	1.3461
2000	636.00	0.02565	0.18813	662.4	1066.6	671.9	464.4	1136.3	0.8623	0.4238	1.2861
3000	695.52	0.03431	0.08404	783.4	968.8	802.5	213.0	1015.5	0.9732	0.1843	1.1575
3203.6	705.44	0.05053	0.05053	872.6	872.6	902.5	0.0	902.5	1.0580	0	1.0580

KIZGIN BUHAR, İNGİLİZ BİRİMLERİ

°F	1 psia				10 psia				14.7 psia			
	v	u	h	s	v	u	h	s	v	u	h	s
150	362.6	1060.2	1127.3	2.0148	-	-	-	-	-	-	-	-
200	392.5	1077.5	1150.1	2.0508	38.85	1074.7	1146.6	1.7927	-	-	-	-
300	452.3	1112.1	1195.8	2.1153	45.00	1110.6	1193.9	1.8595	30.53	1109.7	1192.8	1.8160
400	511.9	1147.0	1241.8	2.1720	51.03	1146.1	1240.5	1.9171	34.67	1145.6	1239.9	1.8741
500	571.5	1182.8	1288.5	2.2235	57.04	1182.2	1287.7	1.9690	38.77	1181.8	1287.3	1.9263
600	631.1	1219.3	1336.1	2.2706	63.03	1218.9	1335.5	2.0164	42.86	1218.6	1335.2	1.9737
700	590.7	1256.7	1384.5	2.3142	69.01	1256.3	1384.0	2.0601	46.93	1256.1	1383.8	2.0175
800	750.3	1294.9	1433.7	2.3550	74.98	1294.6	1433.3	2.1009	51.00	1294.4	1433.1	2.0594
1000	869.5	1373.9	1534.8	2.4294	86.91	1373.8	1534.6	2.1755	59.13	1373.7	1534.5	2.1330
1200	988.6	1456.7	1639.6	2.4967	98.84	1456.5	1639.4	2.2428	67.25	1456.5	1639.3	2.2003
1400	1107.7	1543.1	1748.1	2.5584	110.76	1543.0	1748.0	2.3045	75.36	1543.0	1747.9	2.2621

°F	20 psia				60 psia				100 psia			
	v	u	h	s	v	u	h	s	v	u	h	s
240	20.48	1087	1162	1.741								
280	21.73	1101	1182	1.768								
300	22.36	1108.8	1191.6	1.7808	7.259	1101.0	1181.6	1.6492	-	-	-	-
400	25.43	1145.1	1239.2	1.8395	8.353	1140.8	1233.5	1.7134	4.934	1136.2	1227.5	1.6517
500	28.46	1181.5	1286.8	1.8919	9.399	1178.6	1283.0	1.7678	5.587	1175.7	1279.1	1.7085
600	31.47	1218.4	1334.8	1.9395	10.425	1216.3	1332.1	1.8165	6.216	1214.2	1329.3	1.7582
700	34.47	1255.9	1383.5	1.9834	11.440	1254.4	1381.4	1.8609	6.834	1252.8	1379.2	1.8033
800	37.46	1294.3	1432.9	2.0243	12.448	1293.0	1431.2	1.9022	7.445	1291.8	1429.6	1.8449
1000	43.44	1373.5	1534.3	2.0989	14.454	1372.7	1533.2	1.9773	8.647	1371.9	1532.1	1.9204
1200	49.41	1456.4	1639.2	2.1663	16.452	1455.8	1638.5	2.0448	9.861	1455.2	1637.7	1.9882
1400	55.37	1542.9	1747.9	2.2281	18.445	1542.5	1747.3	2.1067	11.060	1542.0	1746.7	2.0502
1600	61.33	1633.2	1860.1	2.2854	20.44	1632.8	1859.7	2.1641	12.257	1632.4	1859.3	2.1076

°F	120 psia				160 psia				200 psia			
	v	u	h	s	v	u	h	s	v	u	h	s
400	4.079	1133.8	1224.4	1.6288	3.007	1128.8	1217.8	1.5911	2.361	1123.5	1210.8	1.5600
500	4.633	1174.2	1277.1	1.6868	3.440	1171.2	1273.0	1.6518	2.724	1168.0	1268.8	1.6239
600	5.164	1213.2	1327.8	1.7371	3.848	1211.1	1325.0	1.7034	3.058	1208.9	1322.1	1.6767
700	5.682	1252.0	1378.2	1.7825	4.243	1250.4	1376.0	1.7494	3.379	1248.8	1373.8	1.7234
800	6.195	1291.2	1428.7	1.8243	4.631	1289.9	1427.0	1.7916	3.693	1288.6	1425.3	1.7660
1000	7.208	1371.5	1531.5	1.9000	5.397	1370.6	1530.4	1.8677	4.310	1369.8	1529.3	1.8425
1200	8.213	1454.9	1637.3	1.9679	6.154	1454.3	1636.5	1.9358	4.918	1453.7	1635.7	1.9109
1400	9.214	1541.8	1746.4	2.0300	6.906	1541.4	1745.9	1.9980	5.521	1540.9	1745.3	1.9732
1600	10.212	1632.3	1859.0	2.0875	7.656	1631.9	1858.6	2.0556	6.123	1631.6	1858.2	2.0309
1800	11.209	1726.2	1975.1	2.1413	8.405	1725.9	1974.8	2.1094	6.722	1725.6	1974.4	2.0847

°F	250 psia				300 psia				400 psia			
	v	u	h	s	v	u	h	s	v	u	h	s
500	2.150	1163.8	1263.3	1.5948	1.7662	1159.5	1257.5	1.5701	1.2843	1150.1	1245.2	1.5282
600	2.426	1206.1	1318.3	1.6494	2.004	1203.2	1314.5	1.6266	1.4760	1197.3	1306.6	1.5892
700	2.688	1246.7	1371.1	1.6970	2.227	1244.6	1368.3	1.6751	1.6503	1240.4	1362.5	1.6397
750	2.816	1267	1397	1.719	2.335	1265	1395	1.697	1.734	1261	1390	1.663
800	2.943	1287.0	1423.2	1.7401	2.442	1285.4	1421.0	1.7187	1.8163	1282.1	1416.6	1.6844
900	3.193	1327.6	1475.3	1.7799	2.653	1326.3	1473.6	1.7589	1.9776	1323.7	1470.1	1.7252
1000	3.440	1368.7	1527.9	1.8172	2.860	1367.7	1526.5	1.7964	2.136	1365.5	1523.6	1.7632
1200	3.929	1453.0	1634.8	1.8858	3.270	1452.2	1633.8	1.8653	2.446	1450.7	1631.8	1.8327
1400	4.414	1540.4	1744.6	1.9483	3.675	1539.8	1743.8	1.9279	2.752	1538.7	1742.4	1.8956
1600	4.896	1631.1	1857.6	2.0060	4.078	1630.7	1857.0	1.9857	3.055	1629.8	1855.9	1.9535
1800	5.376	1725.2	1974.0	2.0599	4.479	1724.9	1973.5	2.0396	3.357	1724.1	1972.6	2.0076

TABLO – 6 (DEVAM)

KIZGIN BUHAR, İNGİLİZ BİRİMLERİ

°F	P = 450 psi				P= 500 psi				P = 600 psi			
	v	u	h	s	v	u	h	s	v	u	h	s
500	1.123	1145	1239	1.510	0.992	1140	1232	1.492	0.7946	1128	1216	1.459
550	1.214	1171	1272	1.544	1.079	1167	1267	1.528	0.8748	1158	1255	1.499
600	1.299	1194	1302	1.573	1.158	1191	1298	1.558	0.9452	1185	1289	1.532
650	1.380	1217	1332	1.600	1.233	1214	1328	1.586	1.011	1209	1321	1.561
700	1.458	1238	1360	1.625	1.304	1236	1357	1.611	1.073	1232	1351	1.587
750	1.534	1259	1387	1.648	1.373	1258	1385	1.635	1.132	1254	1379	1.611
800	1.608	1280	1414	1.670	1.441	1279	1412	1.657	1.190	1275	1408	1.634
850	1.681	1301	1441	1.691	1.507	1300	1439	1.678	1.247	1297	1435	1.656
900	1.752	1322	1468	1.711	1.572	1321	1467	1.699	1.302	1318	1463	1.677
950	1.824	1343	1495	1.731	1.637	1342	1494	1.718	1.357	1340	1490	1.696
1000	1.894	1364	1522	1.749	1.701	1363	1521	1.737	1.411	1361	1518	1.716
1100	2.034	1407	1576	1.785	1.827	1406	1575	1.773	1.517	1404	1573	1.752
1200	2.172	1450	1631	1.819	1.952	1449	1630	1.807	1.622	1448	1628	1.786
1400	2.444	1538	1742	1.882	2.198	1538	1741	1.870	1.829	1536	1739	1.850
1600	2.715	1629	1855	1.940	2.442	1629	1855	1.929	2.033	1628	1854	1.908
1800	2.983	1724	1972	1.994	2.684	1723	1972	1.983	2.236	1723	1971	1.962

°F	700 psia				800 psia				1000 psia			
	v	u	h	s	v	u	h	s	v	u	h	s
500	XXX	XXX	XXX	XXX	-	-	-	-	-	-	-	-
600	0.7926	1178	1280	1.508	0.6776	1170.1	1270.4	1.4861	0.5140	1153.7	1248.8	1.4450
700	0.9073	1227	1344	1.566	0.7829	1222.1	1338.0	1.5471	0.6080	1212.0	1324.6	1.5135
800	1.011	1272	1403	1.614	0.8764	1268.5	1398.2	1.5969	0.6878	1261.2	1388.5	1.5664
900	1.109	1316	1459	1.658	0.9640	1312.9	1455.6	1.6408	0.7610	1307.3	1448.1	1.6120
1000	1.204	1359	1515	1.697	1.0482	1356.7	1511.9	1.6807	0.8305	1352.2	1505.9	1.6530
1200	1.387	1446	1626	1.768	1.2102	1444.6	1623.8	1.7526	0.9630	1441.5	1619.7	1.7261
1400	1.565	1535	1738	1.832	1.3674	1534.2	1736.6	1.8167	1.0905	1531.9	1733.7	1.7909
1600	1.741	1627	1853	1.891	1.5218	1626.2	1851.5	1.8754	1.2152	1624.4	1849.3	1.8499
1800	1.915	1722	1970	1.945	1.6749	1721.0	1969.0	1.9298	1.3384	1719.5	1967.2	1.9046

T	P = 1250 psi				P= 1500 psi				P = 1750 psi			
	v	u	h	s	v	u	h	s	v	u	h	s
600	0.3786	1129	1217	1.395	0.2816	1097	1175	1.342				
650	0.4267	1167	1266	1.441	0.3329	1147	1239	1.401	0.2626	1122	1208	1.360
700	0.4670	1198	1306	1.477	0.3716	1183	1287	1.443	0.3022	1167	1265	1.411
750	0.5028	1226	1342	1.507	0.4049	1214	1327	1.477	0.3342	1201	1309	1.449
800	0.5364	1252	1376	1.534	0.4350	1242	1363	1.506	0.3622	1231	1349	1.480
850	0.5680	1276	1408	1.559	0.4630	1268	1396	1.532	0.3878	1259	1384	1.508
900	0.5983	1300	1438	1.582	0.4897	1293	1428	1.556	0.4117	1285	1418	1.533
950	0.6276	1323	1469	1.604	0.5153	1317	1460	1.579	0.4348	1310	1451	1.557
1000	0.6561	1346	1498	1.624	0.5400	1340	1490	1.600	0.4569	1334	1482	1.579
1100	0.7114	1392	1557	1.663	0.5875	1387	1550	1.640	0.4990	1382	1544	1.620
1200	0.7649	1438	1614	1.699	0.6332	1433	1609	1.677	0.5391	1429	1604	1.657
1400	0.8690	1529	1730	1.765	0.7211	1526	1726	1.743	0.6158	1523	1723	1.725
1600	0.9699	1622	1846	1.824	0.8061	1620	1844	1.803	0.6895	1618	1841	1.785
1800	1.069	1718	1965	1.879	0.8897	1716	1963	1.858	0.7616	1714	1960	1.840

KIZGIN BUHAR, İNGİLİZ BİRİMLERİ

T	P= 2000 psi				P = 2500 psi				P= 3000 psi			
	v	u	h	s	v	u	h	s	v	u	h	s
650	0.2056	1091	1167	1.314								
700	0.2487	1148	1240	1.378	0.1684	1099	1177	1.307	0.0976	1004	1058	1.194
750	0.2805	1187	1291	1.422	0.2030	1155	1249	1.369	0.1483	1115	1197	1.312
800	0.3072	1220	1334	1.456	0.2292	1196	1302	1.411	0.1757	1168	1265	1.368
850	0.3312	1249	1372	1.486	0.2513	1230	1346	1.446	0.1973	1208	1317	1.408
900	0.3534	1277	1408	1.513	0.2712	1260	1385	1.475	0.2160	1242	1362	1.441
950	0.3744	1303	1441	1.537	0.2896	1288	1422	1.502	0.2329	1273	1402	1.470
1000	0.3943	1328	1474	1.560	0.3070	1315	1457	1.526	0.2485	1302	1440	1.497
1100	0.4325	1377	1537	1.602	0.3392	1367	1524	1.570	0.2772	1356	1510	1.543
1200	0.4685	1425	1599	1.640	0.3695	1417	1588	1.610	0.3035	1408	1577	1.585
1400	0.5368	1520	1719	1.708	0.4261	1514	1711	1.680	0.3523	1508	1704	1.657
1600	0.6020	1615	1838	1.769	0.4795	1611	1833	1.742	0.3978	1606	1827	1.720
1800	0.6656	1712	1958	1.825	0.5312	1708	1954	1.799	0.4416	1704	1950	1.777
2000	0.7284	1811	2080	1.877	0.5820	1807	2076	1.851	0.4844	1804	2073	1.829

T	P = 3500 psi				P= 4000 psi			
	v	u	h	s	v	u	h	s
750	0.1046	1058	1126	1.244	0.0633	960.6	1007	1.139
800	0.1363	1135	1223	1.323	0.1053	1095	1173	1.274
850	0.1582	1183	1286	1.372	0.1283	1156	1251	1.335
900	0.1763	1222	1337	1.410	0.1462	1201	1310	1.379
950	0.1922	1256	1381	1.442	0.1616	1239	1359	1.414
1000	0.2067	1288	1421	1.470	0.1752	1273	1403	1.445
1100	0.2328	1345	1496	1.519	0.1996	1334	1482	1.497
1200	0.2566	1399	1565	1.562	0.2213	1390	1554	1.542
1400	0.2997	1502	1696	1.637	0.2603	1496	1688	1.619
1600	0.3395	1602	1822	1.701	0.2959	1597	1816	1.684
1800	0.3776	1701	1945	1.758	0.3296	1697	1941	1.742
2000	0.4147	1801	2069	1.811	0.3625	1797	2066	1.795

T	P = 5000 psi				P= 6000 psi			
	v	u	h	s	v	u	h	s
750	0.0336	821.4	852.6	1.005	0.0298	788.6	821.7	0.9747
800	0.0594	987.4	1042	1.158	0.0394	897.0	940.7	1.071
850	0.0856	1093	1172	1.260	0.0582	1019	1083	1.182
900	0.1039	1155	1251	1.319	0.0759	1103	1187	1.260
950	0.1185	1202	1312	1.363	0.0901	1162	1262	1.314
1000	0.1313	1242	1363	1.399	0.1021	1209	1322	1.356
1100	0.1530	1311	1452	1.458	0.1222	1286	1422	1.422
1200	0.1720	1372	1531	1.507	0.1393	1353	1507	1.475
1400	0.2052	1483	1673	1.588	0.1685	1470	1658	1.561
1600	0.2348	1588	1805	1.655	0.1942	1579	1794	1.631
1800	0.2626	1690	1933	1.714	0.2180	1682	1925	1.691
2000	0.2895	1791	2059	1.768	0.2409	1784	2052	1.745

**TABLO-7: DOYGUN BUHAR BORU
KAPASİTELERİ – BUHAR HIZI (SHC 40 BORU İÇİN)**

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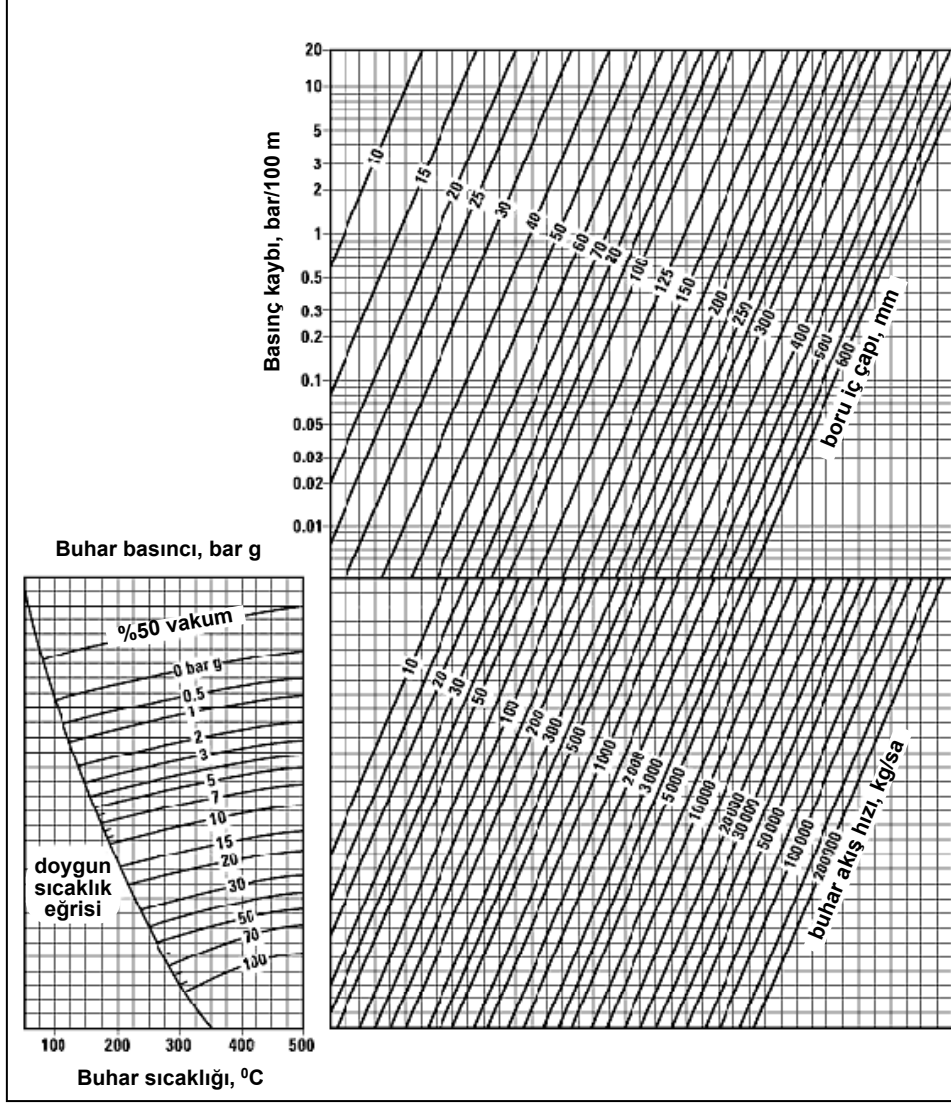
Basınç bar g	Hız m/s	Boru çapı, mm										
		15	20	25	32	40	50	65	80	100	125	150
		Boru gerçek iç çapı, Shc 40										
		15.80	20.93	26.64	35.02	40.90	52.50	62.70	77.92	102.26	128.20	154.05
Boru kapasitesi, kg/sa												
0.4	15	9	15	25	43	58	95	136	210	362	569	822
	25	14	25	41	71	97	159	227	350	603	948	1369
	40	23	40	66	113	154	254	363	561	965	1517	2191
0.7	15	10	18	29	51	69	114	163	251	433	681	983
	25	17	30	40	85	115	190	271	419	722	1135	1638
	40	28	48	78	136	185	304	434	671	1155	1815	2621
1	15	12	21	34	59	81	133	189	292	503	791	1142
	25	20	35	57	99	134	221	315	487	839	1319	1904
	40	32	56	91	158	215	354	505	779	1342	2110	3046
2	15	18	31	50	86	118	194	277	427	735	1156	1669
	25	29	51	83	144	196	323	461	712	1226	1927	2782
	40	47	82	133	230	314	517	737	1139	1961	3083	4451
3	15	23	40	65	113	154	254	362	559	962	1512	2183
	25	38	67	109	188	256	423	603	931	1603	2520	3639
	40	61	107	174	301	410	676	964	1409	2565	4032	5822
4	15	28	50	80	139	190	313	446	689	1186	1186	2691
	25	47	83	134	232	316	521	743	1148	1976	3106	4485
	40	75	132	215	371	506	833	1189	1836	3162	4970	7176
5	15	34	59	96	165	225	371	529	817	1408	2213	3195
	25	56	98	159	276	375	619	882	1362	2347	3688	5325
	40	90	157	255	441	601	990	1411	2180	3755	5901	8521
6	15	39	68	111	191	261	430	613	947	1631	2563	3700
	25	65	114	184	319	435	716	1022	1578	2718	4271	6167
	40	104	182	295	511	696	1146	1635	2525	4348	6834	9867
7	15	44	77	125	217	296	487	695	1073	1848	2904	4194
	25	74	129	209	362	493	812	1158	1788	3080	4841	6989
	40	118	206	334	570	788	1299	1853	2861	4928	7745	11183
8	15	49	86	140	242	330	544	775	1198	2063	3242	4681
	25	82	144	233	404	550	906	1292	1996	3438	5403	7802
	40	131	230	373	646	880	1450	2068	3194	5501	8645	12484
10	15	60	105	170	294	401	660	942	1455	2506	3938	5686
	25	100	175	283	490	668	1101	1570	2425	4176	6563	9477
	40	160	280	453	785	1069	1761	2512	3880	6682	10502	15164
14	15	80	141	228	394	537	886	1263	1951	3360	5281	7625
	25	134	235	380	657	896	1476	2105	3251	5600	8801	12708
	40	214	375	608	1052	1433	2362	3368	5202	8960	14082	20333

TABLO-8: BORU KAPSİTESİ – BASINÇ FAKTÖRÜ

Basınç, bar a	Basınç faktörü, F	Basınç, bar g	Basınç faktörü, F	Basınç, bar g	Basınç faktörü, F
0.05	0.0301	2.05	8.748	7.60	64.84
0.10	0.0115	2.10	9.026	7.70	66.31
0.15	0.0253	2.15	9.309	7.80	67.79
0.20	0.0442	2.20	9.597	7.90	69.29
0.25	0.0681	2.25	9.888	8.0	70.80
0.30	0.0970	2.30	10.18	8.10	72.33
0.35	0.1308	2.35	10.48	8.20	73.88
0.40	0.1694	2.40	10.79	8.30	74.44
0.45	0.2128	2.45	11.40	8.40	77.02
0.50	0.2610	2.50	11.41	8.50	78.61
0.55	0.3140	2.55	11.72	8.60	80.22
0.60	0.3716	2.60	12.05	8.70	81.84
0.65	0.4340	2.65	12.37	8.80	83.49
0.70	0.5010	2.70	12.70	8.90	85.14
0.75	0.5727	2.75	13.03	9.00	86.81
0.80	6489	2.80	13.37	9.10	88.50
0.85	0.7298	2.85	13.71	9.20	90.20
0.90	0.8153	2.90	14.06	9.30	91.92
0.95	0.9053	2.95	14.41	9.40	93.66
1.013	1.0250	3.00	14.76	9.50	95.41
		3.10	15.48	9.60	97.18
		3.20	16.22	9.70	98.96
		3.30	16.98	9.80	100.75
		3.40	17.75	9.90	102.57
		3.50	18.54	10.00	104.40
0	1.025	3.60	19.34	10.20	108.10
0.05	1.126	3.70	20.16	10.40	111.87
0.10	1.230	3.80	21.00	10.60	115.70
0.15	1.339	3.90	21.85	10.80	119.59
0.20	1.453	4.00	22.72	11.00	123.54
0.25	1.572	4.10	23.61	11.20	127.56
0.30	1.694	4.20	24.51	11.40	131.64
0.35	1.822	4.30	25.43	11.60	135.78
0.40	1.953	4.40	26.36	11.80	139.98
0.45	2.090	4.50	27.32	12.00	144.25
0.50	2.230	4.60	28.28	12.20	148.57
0.55	2.375	4.70	29.27	12.40	152.96
0.60	2.525	4.80	30.27	12.60	157.41
0.65	2.679	4.90	31.29	12.80	161.92
0.70	2.837	5.00	32.32	13.00	166.59
0.75	2.999	5.10	33.37	13.20	171.13
0.80	3.166	5.20	34.44	13.40	175.83
0.85	3.338	5.30	35.52	13.60	180.58
0.90	3.514	5.40	36.62	13.80	185.40
0.95	3.694	5.50	37.73	14.00	190.29
1.00	3.878	5.60	38.86	14.20	195.23
1.05	4.067	5.70	40.01	14.40	200.23
1.10	4.260	5.80	41.17	14.60	205.30
1.15	4.458	5.90	42.35	14.80	210.42
1.20	4.660	6.00	43.54	15.00	215.61
1.25	4.866	6.10	44.76	15.20	220.86
1.30	5.076	6.20	45.98	15.40	226.17
1.35	5.291	6.30	47.23	15.60	231.50
1.40	5.510	6.40	48.48	15.80	236.97
1.45	5.734	6.50	49.76	16.00	242.46
1.50	5.961	6.60	51.05	16.20	248.01
1.55	6.193	6.70	52.36	16.40	253.62
1.60	6.429	6.80	53.68	16.60	259.30
1.65	6.670	6.90	55.02	16.80	265.03
1.70	6.915	7.00	56.38	17.00	270.83
1.75	7.164	7.10	57.75	17.20	276.69
1.80	7.417	7.20	59.13	17.40	282.60
1.85	7.675	7.30	60.54	17.60	288.58
1.90	7.937	7.40	61.96	17.80	294.52
1.95	8.203	7.50	63.39	18.00	300.72
2.00	8.473				

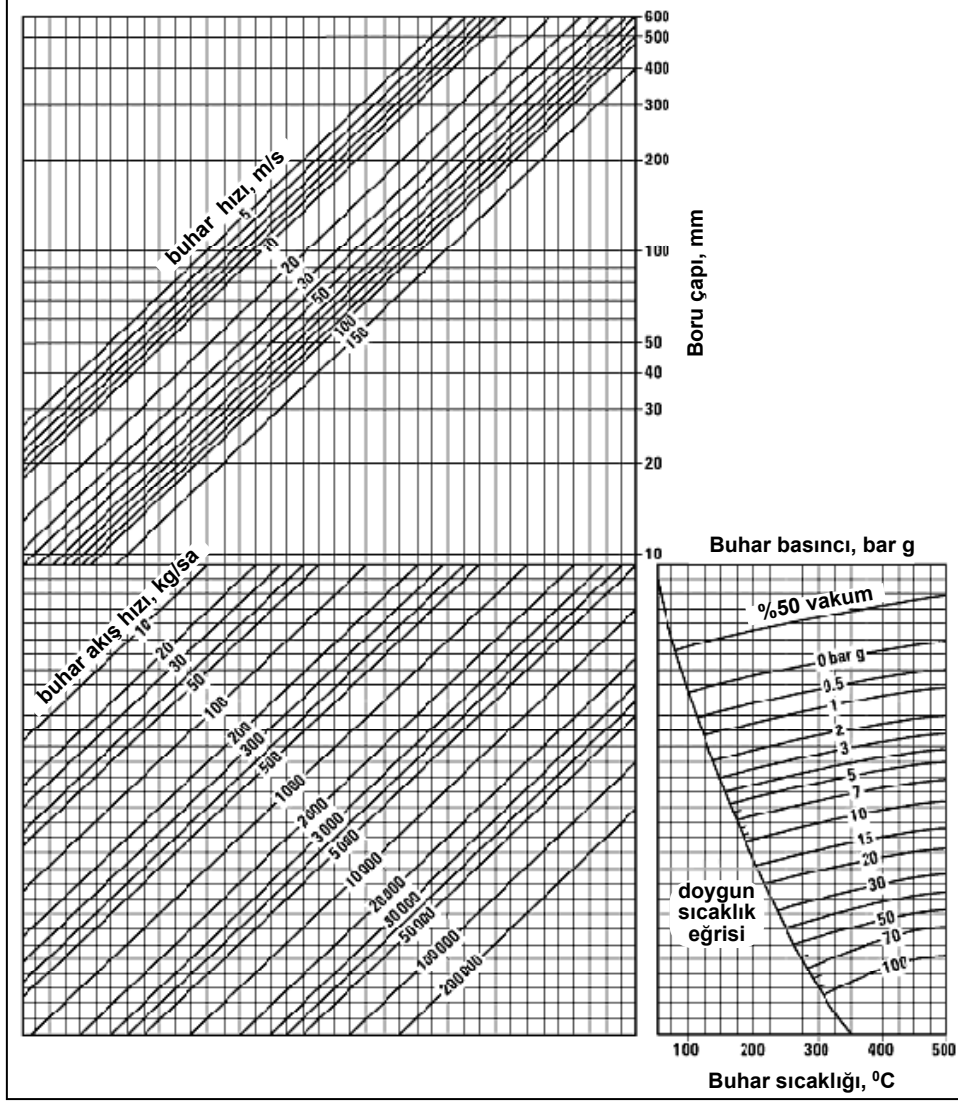
ŞEKİL-1: BUHAR BORU
HATTI ÇAPI – BASINÇ KAYBI DİYAGRAMI

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ŞEKİL-2: BUHAR
BORU HATTI ÇAPI – BUHAR HIZI DİYAGRAMI

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[Ref. e makaleleri](#)