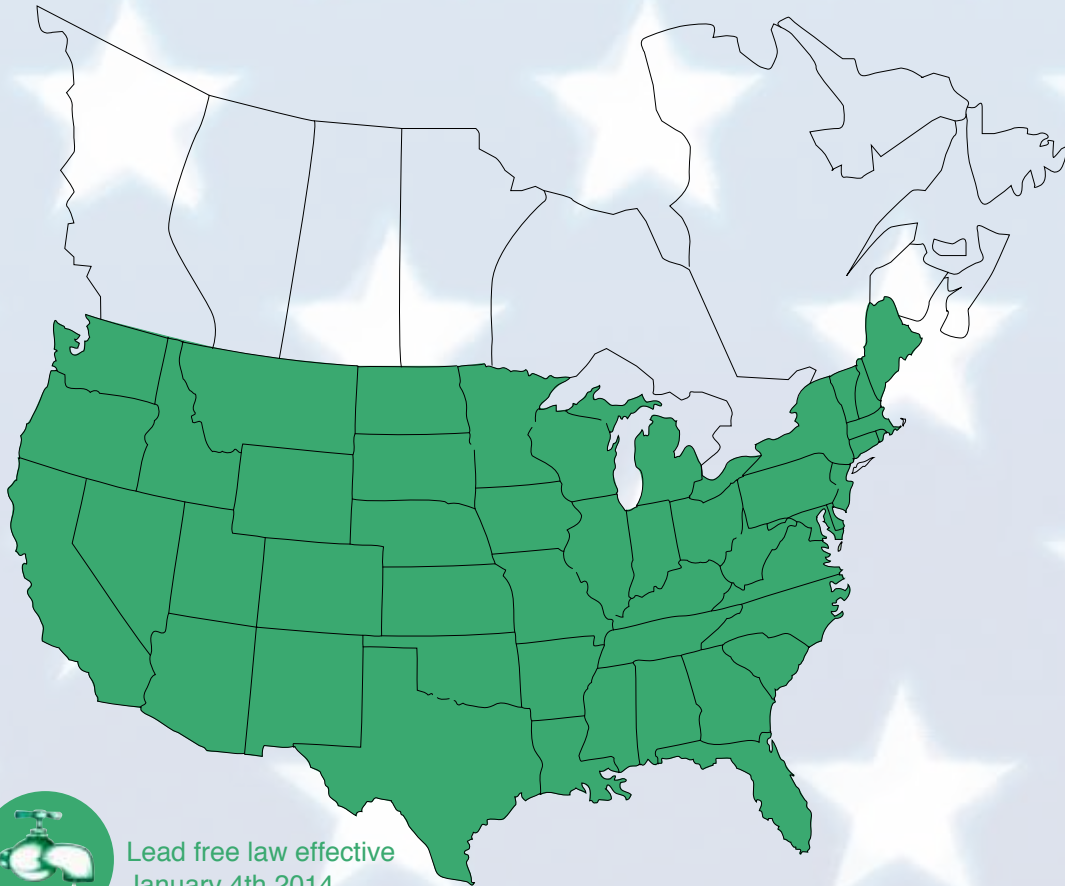


BONOMI

NORTH AMERICA, INC.



Lead free law effective
January 4th 2014

LEAD FREE VALVES AND FITTINGS

The safe water drinking act or SWDA of 1974 was amended by congress on January 4th 2011 under bill S.3874.

In short, and effective January 4th 2014, federal law mandates in all potable water applications, that all wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures cannot contain a weighted average of more than 0.25% lead.

This means that all states must comply by that date, and that all valve manufacturers including Bonomi North America must comply in selling only lead free valves for all potable water applications.

At Bonomi North America, we are dedicated in providing only the highest performing valves that are made from superior grade materials that either meet or exceed all new plumbing standards throughout North America.

The following section of this catalog contains a broad variety of lead free brass products that meet all the new federal mandates referenced above.

Bonomi North America has been an acknowledged leader in the manufacturing of code related brass products, and so, if readers of this message require any further information concerning these changes in our industry, please feel free to contact us at any time.

FORGED BRASS VALVES

INSTALLATION, OPERATION AND MAINTENANCE GUIDE

INTRODUCTION

Considerations for media, pressure, flow, and temperature should be made prior to valve installation, as well as the conditions for pipe line expansion and contraction. When choosing valves, proper sizing, seat, stem, and body materials will greatly increase performance and reduce the chance of failure. Properly installed in piping systems that comply to ANSI B31 standards, Bonomi brass ball valves are suitable for applications including potable water (Lead Free valves), hot water, gas, steam, oil, and vacuum.

INSTALLATION-THREADED

All pipe and valve connections should be free from dirt, grease, and metal. Unclean pipe/valve connections are the number one cause of connection leakage.

Proper connection and thread seal is generally made by the use of any Teflon™ products, including PTFE formulated pipe compound. Teflon pipe compound is recommended on all pipe installations that are not Teflon-restricted applications because of the excellent sealing capabilities at all temperatures and pressures of threaded brass ball valves. Do not use Teflon in applications restricting its use (oxygen, tobacco, etc.). All pipe-joint tape and compounds must be non-toxic, NSF/UPS listed to maintain certifications (UL157). Be sure to apply enough sealant to fill the first 3 to 4 threads, as the screwing action will move the sealant up and around the threads.

Always tighten valve components with two wrenches; one holding the valve end closest to the pipe joint/fitting being tightened, and the other around the pipe/fitting to tighten the connection. This prevents transmitting torque through the valve body joint. To avoid damage to valve, seal, or seat, NEVER over-tighten a valve connection. Twist valve on until it stops, and use the wrenches to make 1-1/2 more turns. Wipe or cut any extra, unused sealant from the connection for a clean, professional result.

For ease of maintenance, two-piece valve connections usually have a union connection close to the valve in the pipe system.

INSTALLATION-SOLDER END

After cutting tubing square, use 100-180 grit emery cloth to burnish the end of the tube. Clean and prepare the pipe and valve with a clean rag.

For drinking water systems (Lead Free valves), apply a non-toxic, water-based solder/flux compliant with NSF 61 to maintain certification throughout the piping system. Never use lead-based, acid flux on drinking water systems. Apply to the pipe and valve, and make connection. Always open the valve before heating the joint. Use only solders with melt points below 500°F.

During soldering, the mid-portion of the valve should not exceed 300°F. Heat absorbing techniques are recommended to protect the valve components and seats. Excessive heat input will damage the valves seals and seats.

Apply heat directly to, and away from the valve end and the pipe. Continue heating from the bottom of the valve while placing non-toxic solder to the top of the connection.

Move the torch up and around both sides of the joint while maintaining pressure on the solder at the top.

When the solder melts rapidly and is sucked into the joint, continuing applying solder until it drips from the bottom of the connection.

Remove heat and wipe excess flux/solder from connection for a clean, professional connection.

Maintaining copper pipe systems is less critical of valve required unions than with ordinary, steel piping systems. Cramped or difficult to maintain areas are generally fitted with 2 unions between the longest span incorporating the valves. If a failure exists, or maintenance is required, the entire section can be removed to make the necessary adjustments.

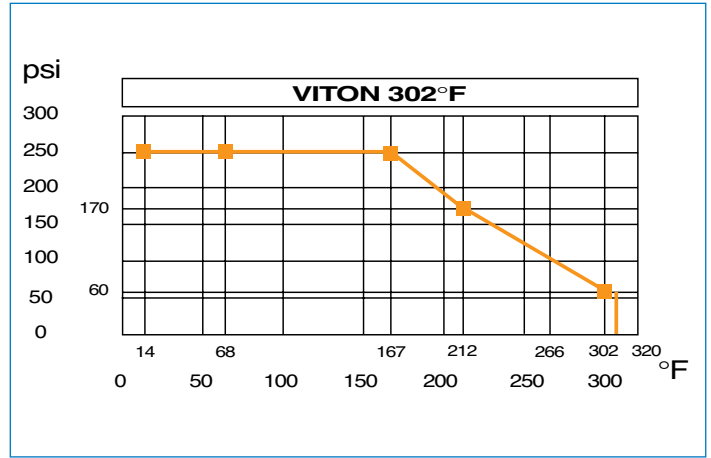
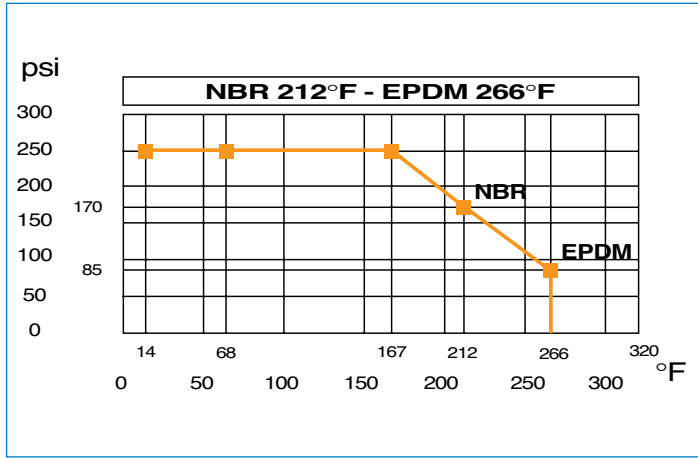
MAINTENANCE

Under normal conditions, scheduled maintenance should not be required.

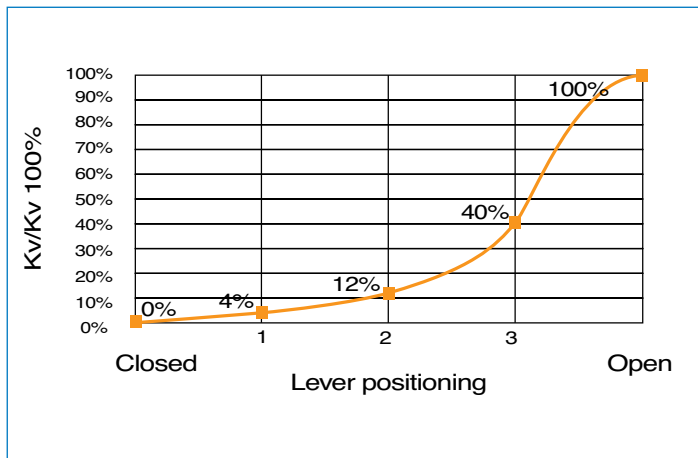
Spare parts are not available for these series of valves. In case of valve through leakage, joint or stem leakage the valve must be replaced.

PRESSURE TEMPERATURE RATING – FLOW RATE DIAGRAM

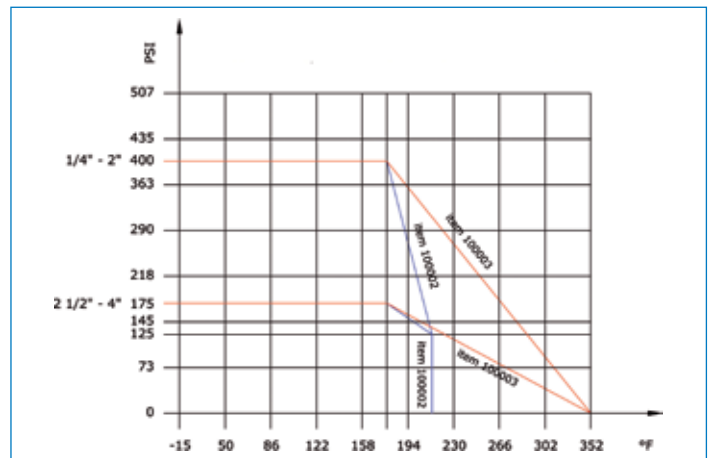
PRESSURE - TEMPERATURE CHART FOR BUTTERFLY VALVES



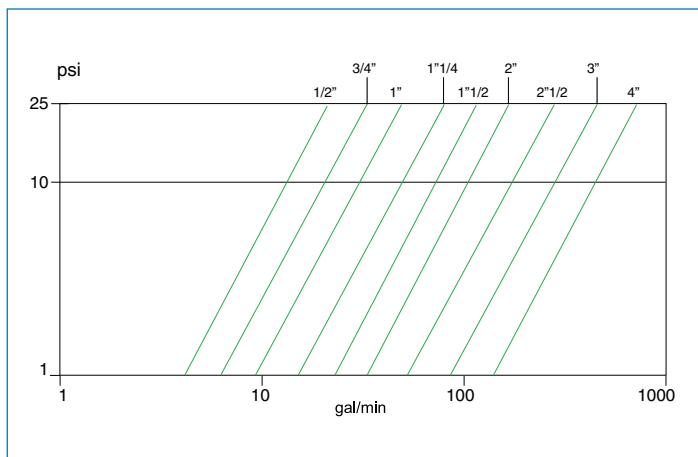
FLOW-RATE CHART FOR BUTTERFLY VALVES



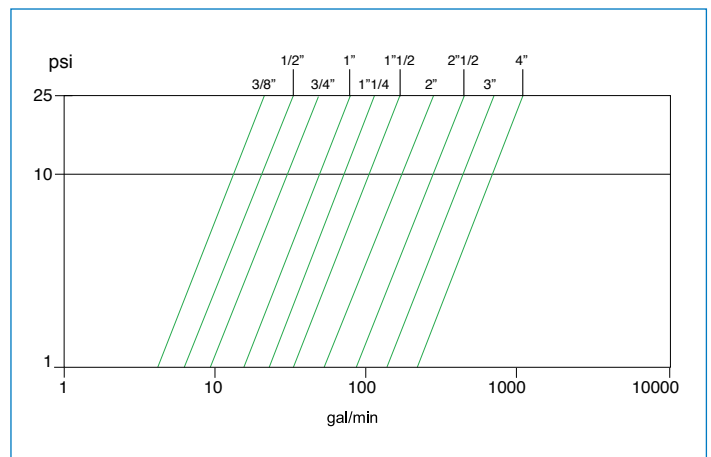
PRESSURE - TEMPERATURE CHART CHECK VALVES



FLOW-RATE CHART FOR CHECK VALVES

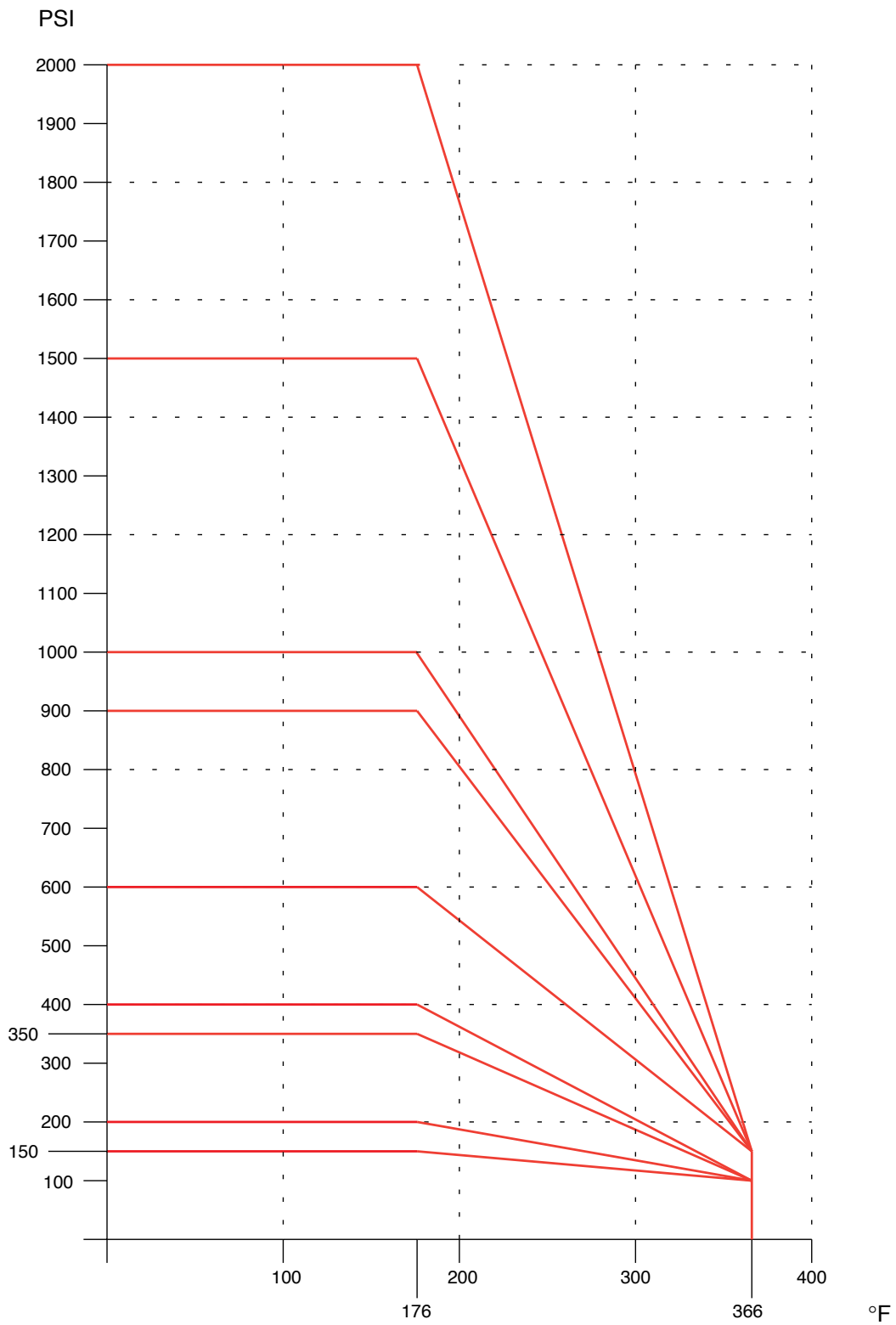


For art. 100202



For artt. 100002-100003

PRESSURE - TEMPERATURE CHART FOR BALL VALVES



TORQUE VALUES OF STEEL AND BRASS VALVES

VALUES IN in-Lbs

Break Torque

The torque values (in-Lbs) shown in the table were measured at the test bench under following conditions:

TEMPERATURE: 68°F.

PRESSURE: 0/2000 psi.

FLUID: demineralized water.

Steel (all series)

SIZES	15 psi	100 psi	150 psi	200 psi	350 psi	600 psi	900 psi	1500 psi	2000 psi
3/8"	27	35	35	35	44	44	44	53	53
1/2"	27	35	35	35	44	44	44	53	53
3/4"	106	115	115	133	142	159	177	195	-
1"	115	124	124	133	150	168	186	204	-
1"1/4	133	150	150	168	186	204	221	-	-
1"1/2	177	195	195	212	239	257	283	-	-
2"	257	283	292	310	345	372	416	-	-
2"1/2	487	540	540	593	646	-	-	-	-
3"	575	637	637	699	770	-	-	-	-
4"	797	956	956	1053	1159	-	-	-	-
5"	850	1018	1018	1124	1239	-	-	-	-
6"	1611	2903	2903	3186	3505	-	-	-	-
8"	2646	5824	5824	6408	-	-	-	-	-

Brass (all series except 250N-253N-355N-365N)

SIZES	15 psi	100 psi	150 psi	200 psi	350 psi	600 psi	900 psi	-	-
3/8"	48	55	55	64	64	72	72	-	-
1/2"	64	72	72	80	80	88	88	-	-
3/4"	127	135	135	143	143	151	151	-	-
1"	167	175	175	175	175	191	191	-	-
1"1/4	175	183	183	183	191	191	-	-	-
1"1/2	374	398	398	406	406	414	-	-	-
2"	382	406	430	446	470	510	-	-	-
2"1/2	478	510	566	613	693	765	-	-	-
3"	868	115	1147	1227	1386	1561	-	-	-
4"	1035	1274	1306	1386	1545	1721	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

N.B. The torque values may change depending on the fluid, temperature and working condition pressure.

N.B. For valves with integral seats, shown values must be doubled.

Running torque

The torque values (in-Lbs) shown in the table were measured after 2 cycles at the test bench under following conditions:

TEMPERATURE: 68°F.

PRESSURE: 0/2000 psi.

FLUID: demineralized water.

Steel (all series)

SIZES	15 psi	100 psi	150 psi	200 psi	350 psi	600 psi	900 psi	1500 psi	2000 psi
3/8"	27	27	31	35	35	40	44	53	62
1/2"	40	40	49	58	62	66	71	75	80
3/4"	53	53	62	62	66	75	80	89	-
1"	62	66	71	75	75	80	89	106	-
1"1/4	62	80	89	97	102	115	-	-	-
1"1/2	97	159	159	168	186	221	-	-	-
2"	266	283	292	310	327	354	-	-	-
2"1/2	310	354	398	460	487	531	-	-	-
3"	620	655	681	735	912	1115	-	-	-
4"	841	991	1044	1142	1213	1460	-	-	-
5"	974	1637	1903	2478	2567	3540	-	-	-
6"	1460	2301	2832	3620	4222	5018	-	-	-
8"	1726	4337	5177	5576	-	-	-	-	-

Brass (all series except 250N-253N-355N-365N)

SIZES	15 psi	100 psi	150 psi	200 psi	350 psi	600 psi	900 psi	-	-
3/8"	24	24	28	32	32	36	40	-	-
1/2"	36	36	44	52	56	60	64	-	-
3/4"	48	48	56	56	60	68	72	-	-
1"	56	60	64	68	67	72	80	-	-
1"1/4	56	72	80	88	92	104	-	-	-
1"1/2	88	143	143	151	167	199	-	-	-
2"	239	255	263	279	295	319	-	-	-
2"1/2	279	319	358	414	438	478	-	-	-
3"	558	589	613	661	820	1004	-	-	-
4"	757	892	940	1028	1091	1314	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

N.B. The torque values may change depending on the fluid, temperature and working condition pressure.

N.B. For valves with integral seats, shown values must be doubled.

PRESSURE CONVERSION FROM PSI TO BAR

psi	bar	psi	bar	psi	bar	psi	bar	psi	bar
1	0.07	66	4.55	255	17.58	860	59.29	1510	104.10
2	0.14	67	4.62	260	17.92	870	59.98	1520	104.79
3	0.21	68	4.69	265	18.27	880	60.67	1530	105.48
4	0.28	69	4.76	270	18.61	890	61.36	1540	106.17
5	0.34	70	4.83	275	18.96	900	62.05	1550	106.86
6	0.41	71	4.89	280	19.30	910	62.74	1560	107.55
7	0.48	72	4.96	285	19.65	920	63.42	1570	108.24
8	0.55	73	5.03	290	19.99	930	64.11	1580	108.93
9	0.62	74	5.10	295	20.34	940	64.80	1590	109.61
10	0.69	75	5.17	300	20.68	950	65.49	1600	110.30
11	0.76	76	5.24	310	21.37	960	66.18	1610	110.99
12	0.83	77	5.31	320	22.06	970	66.87	1620	111.68
13	0.90	78	5.38	330	22.75	980	67.56	1630	112.37
14	0.97	79	5.45	340	23.44	990	68.25	1640	113.06
15	1.03	80	5.52	350	24.13	1000	68.94	1650	113.75
16	1.10	81	5.58	360	24.82	1010	69.63	1660	114.44
17	1.17	82	5.65	370	25.51	1020	70.32	1670	115.13
18	1.24	83	5.72	380	26.20	1030	71.01	1680	115.82
19	1.31	84	5.79	390	26.89	1040	71.70	1690	116.51
20	1.38	85	5.86	400	27.58	1050	72.39	1700	117.20
21	1.45	86	5.93	410	28.27	1060	73.08	1710	117.89
22	1.52	87	6.00	420	28.95	1070	73.77	1720	118.58
23	1.59	88	6.07	430	29.64	1080	74.46	1730	119.27
24	1.65	89	6.14	440	30.33	1090	75.14	1740	119.96
25	1.72	90	6.20	450	31.02	1100	75.83	1750	120.65
26	1.79	91	6.27	460	31.71	1110	76.52	1760	121.33
27	1.86	92	6.34	470	32.40	1120	77.21	1770	122.02
28	1.93	93	6.41	480	33.09	1130	77.90	1780	122.71
29	2.00	94	6.48	490	33.78	1140	78.59	1790	123.40
30	2.07	95	6.55	500	34.47	1150	79.28	1800	124.09
31	2.14	96	6.62	510	35.16	1160	79.97	1810	124.78
32	2.21	97	6.69	520	35.85	1170	80.66	1820	125.47
33	2.28	98	6.76	530	36.54	1180	81.35	1830	126.16
34	2.34	99	6.83	540	37.23	1190	82.04	1840	126.85
35	2.41	100	6.89	550	37.92	1200	82.73	1850	127.54
36	2.48	105	7.24	560	38.61	1210	83.42	1860	128.23
37	2.55	110	7.58	570	39.30	1220	84.11	1870	128.92
38	2.62	115	7.93	580	39.99	1230	84.80	1880	129.61
39	2.69	120	8.27	590	40.67	1240	85.49	1890	130.30
40	2.76	125	8.62	600	41.36	1250	86.18	1900	130.99
41	2.83	130	8.96	610	42.05	1260	86.86	1910	131.68
42	2.90	135	9.31	620	42.74	1270	87.55	1920	132.36
43	2.96	140	9.65	630	43.43	1280	88.24	1930	133.05
44	3.03	145	10.00	640	44.12	1290	88.93	1940	133.74
45	3.10	150	10.34	650	44.81	1300	89.62	1950	134.43
46	3.17	155	10.69	660	45.50	1310	90.31	1960	135.12
47	3.24	160	11.03	670	46.19	1320	91.00	1970	135.81
48	3.31	165	11.38	680	46.88	1330	91.69	1980	136.50
49	3.38	170	11.72	690	47.57	1340	92.38	1990	137.19
50	3.45	175	12.06	700	48.26	1350	93.07	2000	137.88
51	3.52	180	14.41	710	48.95	1360	93.76	2010	138.57
52	3.58	185	12.75	720	49.64	1370	94.45	2020	139.26
53	3.65	190	13.10	730	50.33	1380	95.14	2030	139.95
54	3.72	195	13.44	740	51.02	1390	95.83	2040	140.64
55	3.79	200	13.79	750	51.71	1400	96.52	2050	141.33
56	3.86	105	14.13	760	52.39	1410	97.21	2060	142.02
57	3.93	210	14.48	770	53.08	1420	97.89	2070	142.71
58	4.00	215	14.82	780	53.77	1430	98.58	2080	143.40
59	4.07	220	15.17	790	54.46	1440	99.27	2090	144.08
60	4.14	225	15.51	800	55.15	1450	99.96	2100	144.77
61	4.21	230	15.86	810	55.84	1460	100.65	2110	145.46
62	4.27	235	16.20	820	56.53	1470	101.34	2120	146.15
63	4.34	240	16.55	830	57.22	1480	102.03	2130	146.84
64	4.41	245	16.89	840	57.91	1490	102.72	2140	147.53
65	4.48	250	17.24	850	58.60	1500	103.41	2150	148.22

TEMPERATURE CONVERSION FROM °C TO °F

C°	Conv	F°	C°	Conv	F°	C°	Conv	F°	C°	Conv	F°	C°	Conv	F°
-46	-50	-58	-11	12	54	23	74	165	58	136	277	92	198	388
-45	-49	-56	-11	13	55	24	75	167	58	137	279	93	199	390
-44	-48	-54	-10	14	57	24	76	169	59	138	280	93	200	392
-44	-47	-53	-9	15	59	25	77	171	59	139	282	94	201	394
-43	-46	-51	-9	16	61	26	78	172	60	140	284	94	202	396
-43	-45	-49	-8	17	63	26	79	174	61	141	286	95	203	397
-42	-44	-47	-8	18	64	27	80	176	61	142	288	96	204	399
-42	-43	-45	-7	19	66	27	81	178	62	143	289	96	205	401
-41	-42	-44	-7	20	68	28	82	180	62	144	291	97	206	403
-41	-41	-42	-6	21	70	28	83	181	63	145	293	97	207	405
-40	-40	-40	-6	22	72	29	84	183	63	146	295	98	208	406
-39	-39	-38	-5	23	73	29	85	185	64	147	297	98	209	408
-39	-38	-36	-4	24	75	30	86	187	64	148	298	99	210	410
-38	-37	-35	-4	25	77	31	87	189	65	149	300	99	211	412
-38	-36	-33	-3	26	79	31	88	190	66	150	302	100	212	414
-37	-35	-31	-3	27	81	32	89	192	66	151	304	101	213	415
-37	-34	-29	-2	28	82	32	90	194	67	152	306	101	214	417
-36	-33	-27	-2	29	84	33	91	196	67	153	307	102	215	419
-36	-32	-26	-1	30	86	33	92	198	68	154	309	102	216	421
-35	-31	-24	-1	31	88	34	93	199	68	155	311	103	217	423
-34	-30	-22	0	32	90	34	94	201	69	156	313	103	218	424
-34	-29	-20	1	33	91	35	95	203	69	157	315	104	219	426
-33	-28	-18	1	34	93	36	96	205	70	158	316	104	220	428
-33	-27	-17	2	35	95	36	97	207	71	159	318	105	221	430
-32	-26	-15	2	36	97	37	98	208	71	160	320	106	222	432
-32	-25	-13	3	37	99	37	99	210	71	161	322	106	223	433
-31	-24	-11	3	38	100	38	100	212	72	162	324	107	224	435
-31	-23	-9	4	39	102	38	101	214	73	163	325	107	225	437
-30	-22	-8	4	40	104	39	102	216	73	164	327	108	226	439
-29	-21	-6	5	41	106	39	103	217	74	165	329	108	227	441
-29	-20	-4	6	42	108	40	104	219	74	166	331	109	228	442
-28	-19	-2	6	43	109	41	105	221	75	167	333	109	229	444
-28	-18	0	7	44	111	41	106	223	76	168	334	110	230	446
-27	-17	1	7	45	113	42	107	225	76	169	336	111	231	448
-27	-16	3	8	46	115	42	108	226	77	170	338	111	232	450
-26	-15	5	8	47	117	43	109	228	77	171	340	112	233	451
-26	-14	7	9	48	118	43	110	230	78	172	342	112	234	453
-25	-13	9	9	49	120	44	111	232	78	173	343	113	235	455
-24	-12	10	10	50	122	44	112	234	79	174	345	113	236	457
-24	-11	12	11	51	124	45	113	235	79	175	347	114	237	459
-23	-10	14	11	52	126	46	114	237	80	176	349	114	238	460
-23	-9	16	12	53	127	46	115	239	81	177	351	115	239	462
-22	-8	18	12	54	129	47	116	241	81	178	352	116	240	464
-22	-7	19	13	55	131	47	117	243	82	179	354	116	241	466
-21	-6	21	13	56	133	48	118	244	82	180	356	117	242	468
-21	-5	23	14	57	135	48	119	246	83	181	358	117	243	469
-20	-4	25	14	58	136	49	120	248	83	182	360	118	244	471
-19	-3	27	15	59	138	49	121	250	84	183	361	118	245	473
-19	-2	28	16	60	140	50	122	252	84	184	363	119	246	475
-18	-1	30	16	61	142	51	123	253	85	185	365	119	247	477
-18	0	32	17	62	144	51	124	255	86	186	367	120	248	478
-17	1	34	17	63	145	52	125	257	86	187	369	121	249	480
-17	2	36	18	64	147	52	126	259	87	188	370	121	250	482
-16	3	37	18	65	149	53	127	261	87	189	372	122	251	484
-16	4	39	19	66	151	53	128	262	88	190	374	122	252	486
-15	5	41	19	67	153	54	129	264	88	191	376	123	253	487
-14	6	43	20	68	154	54	130	266	89	192	378	123	254	489
-14	7	45	21	69	156	55	131	268	89	193	379	124	255	491
-13	8	46	21	70	158	56	132	270	90	194	381	124	256	493
-13	9	48	22	71	160	56	133	271	91	195	383	125	257	495
-12	10	50	22	72	162	57	134	273	91	196	385	126	258	496
-12	11	52	23	73	163	57	135	275	92	197	387	126	259	498

USE OF THE TABLE

Please always refer to the column in the middle (conv. column). If the temperature you need to convert is in Celsius degrees you get the corresponding Fahrenheit temperature by reading the data on its right; while if it is a Fahrenheit temperature you get the Celsius one on the left side.

The general conversion formulas are:

$$F^{\circ} = \frac{9}{5} \text{ } ^{\circ}\text{C} + 32 \quad \text{ } ^{\circ}\text{C} = \frac{5}{9} (\text{ } ^{\circ}\text{F} - 32)$$

