

UNITÀ FONDAMENTALI (SI)

Grandezza	Unità	Simbolo
Lunghezza	Metro	m
Massa	Kilogrammo	kg
Tempo	Secondo	s
Corrente elettrica	Ampere	A
Temperatura	Kelvin	K

UNITÀ DERIVATE (SI)

Grandezza	Unità	Simbolo
Accelerazione	metro/secondo al quadrato	m/s ²
Area	metro quadrato	m ²
Calore latente	joule/kilogrammo	J/kg
Calore specifico di massa	joule/kilogrammo · kelvin	J/kg · K
Calore specifico di volume	joule/metro cubo · kelvin	J/m ³ · K
Campo di forza elettrica	volt/metro	V/m
Campo magnetico	ampere/metro	A/m
Capacità termica	joule/kelvin	J/K
Capacità termica molare	joule/kelvin · mole	J/K · mol
Coefficiente di diffusione	metro quadrato/secondo	m ² /s
Concentrazione	mole/metro cubo	mol/m ³
Conduttività elettrica	siemens/metro	S/m
Conduttività termica	watt/metro · kelvin	W/m · K
Densità	kilogrammo/metro cubo	kg/m ³
Densità di corrente	ampere/metro quadrato	A/m ²
Densità di flusso termico	watt/metro quadrato	W/m ²
Entropia	joule/kelvin	J/K

UNITÀ DERIVATE CON SIMBOLO PROPRIO (SI)

Grandezza	Unità	Simbolo	Dimensioni
Energia	Joule	J	N · m
Forza	Newton	N	J/m
Spinta o Pressione	Pascal	Pa	N/m ²
Potenza	Watt	W	J/s
Campo elettrico	Coulomb	C	A · s
Potenziale elettrico	Volt	V	W/A
Resistenza elettrica	Ohm	Ω	V/A
Capacità elettrica	Farad	F	C/V

MULTIPLI E SOTTOMULTIPLI DECIMALI

Fattore di moltiplicazione	Prefisso	
	Nome	Simbolo
10 ¹²	tera	T
10 ⁹	giga	G
10 ⁶	mega	M
10 ³	kilo	k
10 ²	etto	h
10 ¹	deca	da
10 ⁻¹	deci	d

Grandezza	Unità	Simbolo
Intensità luminosa	Candela	cd
Quantità di sostanza	Mole	mol
Angolo piano	Radiante	rad
Angolo solido	Steradiane	sr

Grandezza	Unità	Simbolo
Momento di forza	newton · metro	N · m
Momento di inerzia	kilogrammo/metro quadrato	kg/m ²
Numero d'onde	metro ⁻¹	m ⁻¹
Permeabilità	henry/metro	H/m
Permittività	farad/metro	F/m
Potere calorifico	joule/kilogrammo	J/kg
Potere termoelettrico	volt/kelvin	V/K
Resistività elettrica	ohm · metro	Ω · m
Tensione superficiale	newton/metro	N/m
Velocità	metro/secondo	m/s
Velocità angolare	radiante/secondo	rad/s
Viscosità cinematica	metro quadrato/secondo	m ² /s
Viscosità dinamica	pascal · secondo	Pa · s
Volume	metro cubo	m ³
Volume molare	metro cubo/mole	m ³ /mol
Volume specifico	metro cubo/kilogrammo	m ³ /kg

Grandezza	Unità	Simbolo	Dimensioni
Conduttanza elettrica	Siemens	S	A/V
Flusso magnetico	Weber	Wb	V · s
Induttanza	Henry	H	V · s/A
Densità di flusso magnetico	Tesla	T	Wb/m
Flusso luminoso	Lumen	lm	cd · sr
Illuminazione	Lux	lx	cd · sr/m
Frequenza	Hertz	Hz	s ⁻¹

Fattore di moltiplicazione	Prefisso	
	Nome	Simbolo
10 ⁻²	centi	c
10 ⁻³	milli	m
10 ⁻⁶	micro	μ
10 ⁻⁹	nano	n
10 ⁻¹²	pico	p
10 ⁻¹⁵	femto	f
10 ⁻¹⁸	atto	a

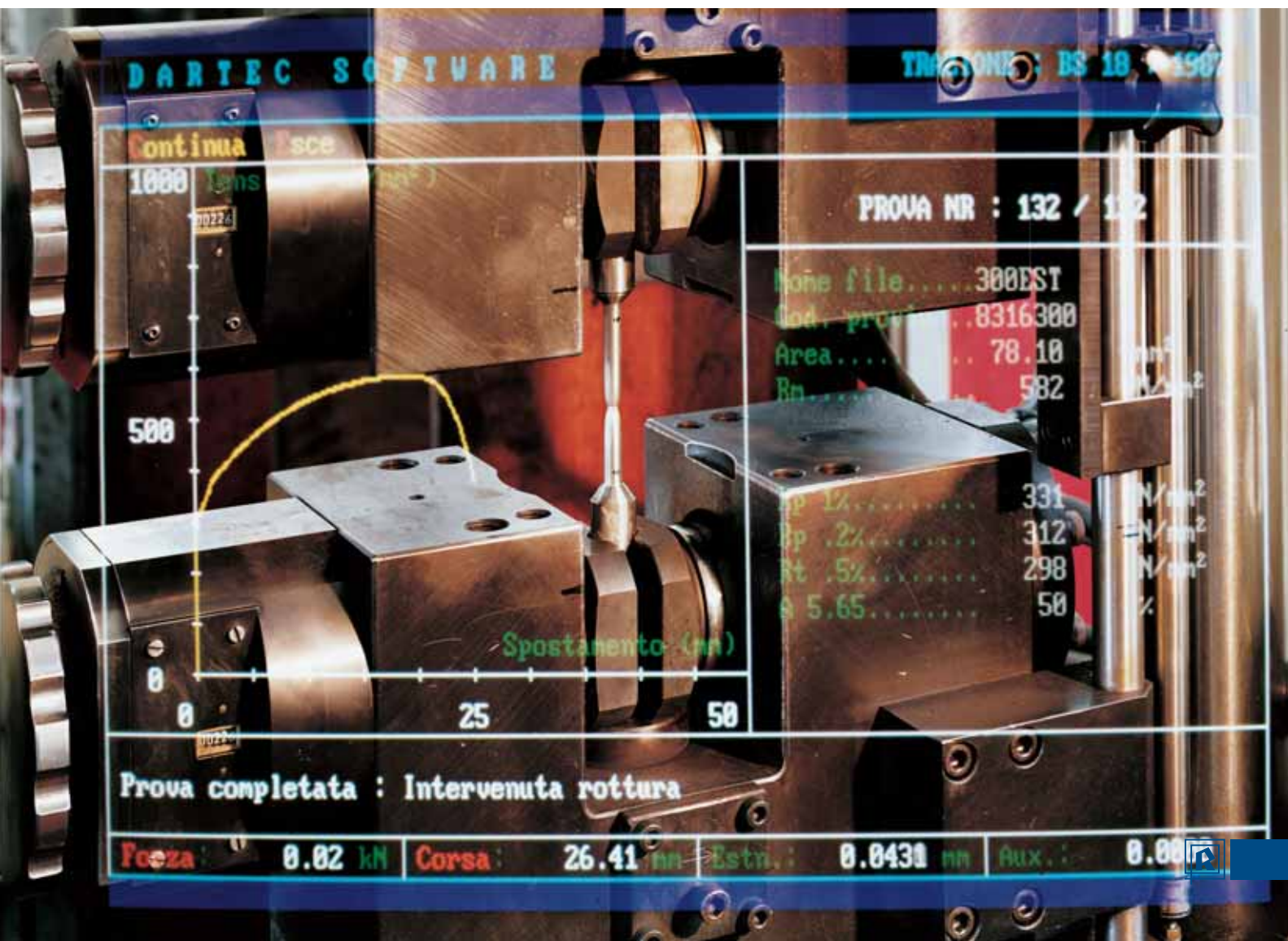
UNITÀ DI MISURA

UNITÀ DI MISURA

Unità di misura	Dine · cm (erg)	J	kg · m	kW/h	CV · h	cal	BTU	eV
1 dine·cm (erg)	1	10^{-7}	$1,02 \cdot 10^{-8}$	$2,78 \cdot 10^{-14}$	$3,78 \cdot 10^{-14}$	$2,39 \cdot 10^{-8}$	$9,45 \cdot 10^{-11}$	$6,25 \cdot 10^{11}$
1J	10^7	1	$1,02 \cdot 10^{-1}$	$2,78 \cdot 10^7$	$3,78 \cdot 10^7$	$2,39 \cdot 10^{-1}$	$9,45 \cdot 10^{-4}$	$6,25 \cdot 10^{18}$
1kg·m	$9,8 \cdot 10^7$	9,8	1	$2,72 \cdot 10^{-6}$	$3,7 \cdot 10^{-6}$	$2,3 \cdot 10^{-3}$	$9,3 \cdot 10^{-3}$	$6,13 \cdot 10^{19}$
1kW·h	$3,6 \cdot 10^{13}$	$3,6 \cdot 10^6$	$3,67 \cdot 10^5$	1	1,36	$8,6 \cdot 10^2$	$3,41 \cdot 10^3$	$2,26 \cdot 10^{25}$
1CV·h	$2,65 \cdot 10^{13}$	$2,65 \cdot 10^6$	$2,7 \cdot 10^5$	$7,35 \cdot 10^{-1}$	1	$6,33 \cdot 10^2$	$2,51 \cdot 10^3$	$1,68 \cdot 10^{25}$
1 cal	$4,18 \cdot 10^7$	4,186	$4,27 \cdot 10^{-1}$	$1,16 \cdot 10^{-6}$	$1,58 \cdot 10^{-6}$	1	$3,97 \cdot 10^{-5}$	$2,62 \cdot 10^{19}$
1BTU	$1,05 \cdot 10^{10}$	$1,05 \cdot 10^3$	$1,07 \cdot 10^2$	$2,93 \cdot 10^{-4}$	$3,98 \cdot 10^{-4}$	$2,52 \cdot 10^{-1}$	1	$6,6 \cdot 10^{21}$
1 eV	$1,6 \cdot 10^{-12}$	$1,6 \cdot 10^{-19}$	$1,64 \cdot 10^{-20}$	$4,45 \cdot 10^{-26}$	$6,01 \cdot 10^{-26}$	$3,82 \cdot 10^{-20}$	$1,52 \cdot 10^{-22}$	1

UNITÀ DI MISURA

Unità di misura	bar	Pa	MPa	kg/cm ²	atm	psi	mm Hg
1 bar	1	$1 \cdot 10^5$	$1 \cdot 10^{-1}$	1,0197	0,987	14,504	$7,5006 \cdot 10^2$
1 Pa	$1 \cdot 10^{-5}$	1	$1 \cdot 10^{-6}$	$1,0197 \cdot 10^{-5}$	$0,987 \cdot 10^{-5}$	$14,504 \cdot 10^{-5}$	$7,5006 \cdot 10^{-3}$
1 MPa	10	$1 \cdot 10^6$	1	10,197	9,87	145,04	$7,5006 \cdot 10^9$
1 kg/cm ²	0,980	$0,980 \cdot 10^5$	0,0980	1	0,9678	14,223	$7,35 \cdot 10^4$
1 atm	1,013	$1,013 \cdot 10^5$	0,0103	1,033	1	14,696	$7,59 \cdot 10^2$
1 psi	0,0689	$0,0689 \cdot 10^5$	0,00689	0,0703	0,0680	1	$0,2539 \cdot 10^2$
1mm Hg	$0,133 \cdot 10^{-2}$	$0,133 \cdot 10^3$	$0,133 \cdot 10^{-3}$	$0,136 \cdot 10^{-4}$	$0,131 \cdot 10^{-2}$	$3,937 \cdot 10^{-2}$	1



CONVERSIONI

POLLICI IN MILLIMETRI

Pollici Frazioni	0	1	2	3	4	5	6	7	8	9	10	11
0	0	25,400	50,800	76,200	101,600	127,000	152,400	177,800	203,200	228,600	254,000	279,400
1/64	0,396	25,796	51,196	76,596	101,996	127,396	152,796	178,196	203,596	228,996	254,396	279,796
1/32	0,793	26,193	51,593	76,993	102,393	127,793	153,193	178,593	203,993	229,393	254,793	280,193
3/64	1,190	26,590	51,990	77,390	102,790	128,190	153,590	178,990	204,390	229,790	255,190	280,590
1/16	1,587	26,987	52,387	77,787	103,187	128,587	153,987	179,387	204,787	230,187	255,587	280,937
5/64	1,984	27,384	52,784	78,184	103,584	128,984	154,384	179,784	205,184	230,584	255,984	281,384
3/32	2,381	27,781	53,181	78,581	103,981	129,381	154,781	180,181	205,581	230,981	256,381	281,781
7/64	2,778	28,178	53,578	78,978	104,378	129,778	155,178	180,578	205,978	231,378	256,778	282,178
1/8	3,175	28,575	53,975	79,375	104,775	130,175	155,575	180,975	206,375	231,775	257,175	282,575
9/64	3,571	28,971	54,371	79,771	105,171	130,571	155,971	181,371	206,771	232,171	257,571	282,971
5/32	3,968	29,368	54,768	80,168	105,568	130,968	156,368	181,768	207,168	232,568	257,968	283,368
11/64	4,365	29,765	55,165	80,565	105,965	131,365	156,765	182,165	207,565	232,965	258,365	283,765
3/16	4,762	30,162	55,562	80,962	106,362	131,762	157,162	182,562	207,962	233,362	258,762	284,162
13/64	5,159	30,559	55,959	81,359	106,759	132,159	157,559	182,959	208,359	233,759	259,159	284,559
7/32	5,556	30,956	56,356	81,756	107,156	132,556	157,956	183,356	208,756	234,156	259,556	284,956
15/64	5,953	31,353	56,753	82,153	107,553	132,953	158,353	183,753	209,153	234,553	259,953	285,353
1/4	6,350	31,750	57,150	82,550	107,950	133,350	158,750	184,150	209,550	234,950	260,350	285,750
17/64	6,746	32,146	57,546	82,946	108,346	133,746	159,146	184,546	209,946	235,346	260,746	286,146
9/32	7,143	32,543	57,943	83,343	108,743	134,143	159,543	184,943	210,343	235,743	261,143	286,543
19/64	7,540	32,940	58,340	83,740	109,140	134,540	159,940	185,340	210,740	236,140	261,540	286,940
5/16	7,937	33,337	58,737	84,137	109,537	134,937	160,337	185,737	211,137	236,537	261,937	287,337
21/64	8,334	33,734	59,134	84,534	109,934	135,334	160,734	186,134	211,534	236,934	262,334	287,734
11/32	8,731	34,131	59,531	84,931	110,331	135,731	161,131	186,531	211,931	237,331	262,731	288,131
23/64	9,128	34,528	59,928	85,328	110,728	136,128	161,528	186,928	212,328	237,728	263,128	288,528
3/8	9,525	34,925	60,325	85,725	111,125	136,525	161,925	187,325	212,725	238,125	263,525	288,925
25/64	9,921	35,321	60,721	86,121	111,521	136,921	162,321	187,721	213,121	238,521	263,921	289,321
13/32	10,318	35,718	61,118	86,518	111,918	137,318	162,718	188,118	213,518	238,918	264,318	289,718
27/64	10,715	36,115	61,515	86,915	112,315	137,715	163,115	188,515	213,915	239,315	264,715	290,115
7/16	11,112	36,512	61,912	87,312	112,712	138,112	163,512	188,912	214,312	239,712	265,112	290,512
29/64	11,509	36,909	62,309	87,709	113,109	138,509	163,909	189,309	214,709	240,109	265,509	290,909
15/32	11,906	37,306	62,706	88,106	113,506	138,906	164,306	189,706	215,106	240,506	265,906	291,306
31/64	12,303	37,703	63,103	88,503	113,903	139,303	164,703	190,103	215,503	240,903	266,303	291,703
1/2	12,700	38,100	63,500	88,900	114,300	139,700	165,100	190,500	215,900	241,300	266,700	292,100
33/64	13,096	38,496	63,896	89,296	114,696	140,096	165,496	190,896	216,296	241,696	267,096	292,496
17/32	13,493	38,893	64,293	89,693	115,093	140,493	165,893	191,293	216,693	242,093	267,493	292,893
35/64	13,890	39,290	64,690	90,090	115,490	140,890	166,290	191,690	217,090	242,490	267,890	293,290
9/16	14,287	39,687	65,087	90,487	115,887	141,287	166,687	192,087	217,487	242,887	268,287	293,687
37/64	14,684	40,084	65,484	90,884	116,284	141,684	167,084	192,484	217,884	243,284	268,684	294,084
19/32	15,081	40,481	65,881	91,281	116,681	142,081	167,481	192,881	218,281	243,681	269,081	294,481
39/64	15,478	40,878	66,278	91,678	117,078	142,478	167,878	193,278	218,678	244,078	269,478	294,878
5/8	15,875	41,275	66,675	92,075	117,475	142,875	168,275	193,675	219,075	244,475	269,875	295,275
41/64	16,271	41,671	67,071	92,471	117,871	143,271	168,671	194,071	219,471	244,871	270,271	295,671
21/32	16,668	42,068	67,468	92,868	118,268	143,668	169,068	194,468	219,868	245,268	270,668	296,068
43/64	17,065	42,465	67,865	93,265	118,665	144,065	169,465	194,865	220,265	245,665	271,065	296,465
11/16	17,462	42,862	68,262	93,662	119,062	144,462	169,862	195,262	220,662	246,062	271,462	296,862



CONVERSIONI

POLLICI IN MILLIMETRI

Pollici Frazioni	0	1	2	3	4	5	6	7	8	9	10	11
45/64	17,859	43,259	68,659	94,059	119,459	144,859	170,259	195,659	221,059	246,459	271,859	297,259
23/32	18,256	43,656	69,056	94,456	119,856	145,256	170,656	196,056	221,456	246,856	272,256	297,656
47/64	18,653	44,053	69,453	94,853	120,253	145,653	171,053	196,453	221,853	247,253	272,653	298,053
3/4	19,050	44,450	69,850	95,250	120,650	146,050	171,450	196,850	222,250	247,650	273,050	298,450
49/64	19,446	44,846	70,246	95,646	121,046	146,446	171,846	197,246	222,646	248,046	273,446	298,846
25/32	19,843	45,243	70,643	96,043	121,443	146,843	172,243	197,643	223,043	248,443	273,843	299,243
51/64	20,240	45,640	71,040	96,440	121,840	147,240	172,640	198,040	223,440	248,840	274,240	299,640
13/16	20,637	46,037	71,437	96,837	122,237	147,637	173,037	198,437	223,837	249,237	274,637	300,037
53/64	21,034	46,434	71,834	97,234	122,634	148,034	173,434	198,834	224,234	249,634	275,034	300,434
27/32	21,431	46,831	72,231	97,631	123,031	148,431	173,831	199,231	224,631	250,031	275,431	300,831
55/64	21,828	47,228	72,628	98,028	123,428	148,828	174,228	199,628	225,028	250,428	275,828	301,228
7/8	22,225	47,625	73,025	98,425	123,825	149,225	174,625	200,025	225,425	250,825	276,225	301,625
57/64	22,621	48,021	73,421	98,821	124,221	149,621	175,021	200,421	225,821	251,221	276,621	302,021
29/32	23,018	48,418	73,818	99,218	124,618	150,018	175,418	200,818	226,218	251,618	277,018	302,418
59/64	23,415	48,815	74,215	99,615	125,015	150,415	175,815	201,215	226,615	252,015	277,415	302,815
15/16	23,812	49,212	74,612	100,012	125,412	150,812	176,212	201,612	227,012	252,412	277,812	303,212
61/64	24,209	49,609	75,009	100,409	125,809	151,209	176,609	202,009	227,409	252,809	278,209	303,609
31/32	24,606	50,006	75,406	100,806	126,206	151,606	177,006	202,406	227,806	253,206	278,606	304,006
63/64	25,003	50,403	75,803	101,203	126,603	152,003	177,403	202,803	228,203	253,603	279,003	304,403

LIBBRE IN CHIOLOGRAMMI

Libbre	0	1	2	3	4	5	6	7	8	9
0	0,0000	0,4536	0,9072	1,3608	1,8144	2,2680	2,7216	3,1751	3,6287	4,0823
10	4,5359	4,9895	5,4431	5,8967	6,3503	6,8039	7,2575	7,7111	8,1647	8,6183
20	9,0719	9,5254	9,9790	10,433	10,886	11,340	11,793	12,247	12,701	13,154
30	13,608	14,061	14,515	14,969	15,422	15,876	16,329	16,783	17,237	17,690
40	18,144	18,597	19,051	19,504	19,958	20,412	20,865	21,319	21,772	22,226
50	22,680	23,133	23,587	24,040	24,494	24,948	25,401	25,855	26,308	36,761
60	27,216	27,669	28,123	28,576	29,030	29,484	29,937	30,391	30,844	31,298
70	31,751	32,205	32,659	33,112	33,566	34,019	34,473	34,927	35,380	35,833
80	36,287	36,741	37,195	37,648	38,102	38,555	39,009	39,463	39,916	40,370
90	40,823	41,277	41,731	42,184	42,638	43,091	43,545	43,998	44,452	44,905

UNITÀ DI MISURA ANGLOSASSONI

Sistema anglosassone	Sistema metrico decimale
Pollice	25,4 mm
Piede (12 pollici)	0,3048 m
Yarda (3 piedi)	0,9144 m
Miglio	1609 m
Oncia	28,35 g
Libbra (16 once)	453,6 g
Psi (libbra/pollice ²)	6,897·10 ⁻³ MPa

Sistema metrico decimale	Sistema anglosassone
mm	0,03937 pollici
m	3,2808 piedi
m	1,093 yarde
1000 m	0,6214 miglia
1000 g	35,278 once
1000 g	2,2 libbre
MPa (N/mm ²)	144,99 psi

CONVERSIONI

TABELLA DI CONVERSIONE DA GRADI FARENHEIT A GRADI CENTIGRADI

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

°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C
-459,4	-273	-40	-40,0	290	143,3	720	382,2	1150	621,1	1580	860,0	2010	1098,9	2440	1337,8
-450	-267,8	-30	-34,4	300	148,9	730	387,8	1160	626,7	1590	865,6	2020	1104,4	2450	1343,3
-440	-262,2	-20	-28,9	310	154,4	740	393,3	1170	632,2	1600	871,1	2030	1110,0	2460	1348,9
-430	-256,7	-10	-23,3	320	160,0	750	398,9	1180	637,8	1610	876,7	2040	1115,6	2470	1354,4
-420	-251,1	0	-17,8	330	165,6	760	404,4	1190	643,3	1620	882,2	2050	1121,1	2480	1360,0
-410	-245,6	5	-15,0	340	171,1	770	410,0	1200	648,9	1630	887,8	2060	1126,7	2490	1365,6
-400	-240,0	10	-12,2	350	176,7	780	415,6	1210	654,4	1640	893,3	2070	1132,2	2500	1371,1
-390	-234,4	15	-9,4	360	182,2	790	421,1	1220	660,0	1650	898,9	2080	1137,8	2520	1382,2
-380	-228,9	20	-6,7	370	187,8	800	426,7	1230	665,6	1660	904,4	2090	1143,3	2540	1393,3
-370	-223,3	25	-3,9	380	193,3	810	432,2	1240	671,1	1670	910,0	2100	1148,9	2560	1404,4
-360	-217,8	30	-1,1	390	198,9	820	437,8	1250	676,7	1680	915,6	2110	1154,4	2580	1415,6
-350	-212,2	35	1,7	400	204,4	830	443,3	1260	682,2	1690	921,1	2120	1160,0	2600	1426,7
-340	-206,7	40	4,4	410	210,0	840	448,9	1270	687,8	1700	926,7	2130	1165,6	2620	1437,8
-330	-201,1	45	7,2	420	215,6	850	454,4	1280	693,3	1710	932,2	2140	1171,1	2640	1448,9
-320	-195,6	50	10,0	430	221,1	860	460,0	1290	698,9	1720	937,8	2150	1176,7	2660	1460,0
-310	-190,0	55	12,8	440	226,7	870	465,6	1300	704,4	1730	943,3	2160	1182,2	2680	1471,1
-300	-184,4	60	15,6	450	232,2	880	471,1	1310	710,0	1740	948,9	2170	1187,8	2700	1482,2
-290	-178,9	65	18,3	460	237,8	890	476,7	1320	715,6	1750	954,4	2180	1193,3	2720	1493,3
-280	-173,3	70	21,1	470	243,3	900	482,2	1330	721,1	1760	960,0	2190	1198,9	2740	1504,4
-273	-169,4	75	23,9	480	248,9	910	487,8	1340	726,7	1770	965,6	2200	1204,4	2760	1515,6
-270	-167,8	80	26,7	490	254,4	920	493,3	1350	732,2	1780	971,1	2210	1210,0	2780	1526,7
-260	-162,2	85	29,4	500	260,0	930	498,9	1360	737,8	1790	976,7	2220	1215,6	2800	1537,8
-250	-156,7	90	32,2	510	265,6	940	504,4	1370	743,3	1800	982,2	2230	1221,1	2820	1548,9
-240	-151,1	95	35,0	520	271,1	950	510,0	1380	748,9	1810	987,8	2240	1226,7	2840	1560,0
-230	-145,6	100	37,8	530	276,7	960	515,6	1390	754,4	1820	993,3	2250	1232,2	2860	1571,1
-220	-140,0	110	43,3	540	282,2	970	521,1	1400	760,0	1830	998,9	2260	1237,8	2880	1582,2
-210	-134,4	120	48,9	550	287,8	980	526,7	1410	765,6	1840	1004,4	2270	1243,3	2900	1593,3
-200	-128,9	130	54,4	560	293,3	990	532,2	1420	771,1	1850	1010,0	2280	1248,9	2920	1604,4
-190	-123,3	140	60,0	570	298,9	1000	537,8	1430	776,7	1860	1015,6	2290	1254,4	2940	1615,6
-180	-117,8	150	65,6	580	304,4	1010	543,3	1440	782,2	1870	1021,1	2300	1260,0	2960	1626,7
-170	-112,2	160	71,1	590	310,0	1020	548,9	1450	787,8	1880	1026,7	2310	1265,6	2980	1637,8
-160	-106,7	170	76,7	600	315,6	1030	554,4	1460	793,3	1890	1032,2	2320	1271,1	3000	1648,9
-150	-101,1	180	82,2	610	321,1	1040	560,0	1470	798,9	1900	1037,8	2330	1276,7	3020	1660,0
-140	-95,6	190	87,8	620	326,7	1050	565,6	1480	804,4	1910	1043,3	2340	1282,2	3040	1671,1
-130	-90,0	200	93,3	630	332,2	1060	571,1	1490	810,0	1920	1048,9	2350	1287,8	3060	1682,2
-120	-84,4	210	98,9	640	337,8	1070	576,7	1500	815,6	1930	1054,4	2360	1293,3	3080	1693,3
-110	-78,9	220	104,4	650	343,3	1080	582,2	1510	821,1	1940	1060,0	2370	1298,9	3100	1704,4
-100	-73,3	230	110,0	660	348,9	1090	587,8	1520	826,7	1950	1065,6	2380	1304,4	3120	1715,6
-90	-67,8	240	115,6	670	354,4	1100	593,3	1530	832,2	1960	1071,1	2390	1310,0	3140	1726,7
-80	-62,2	250	121,1	680	360,0	1110	598,9	1540	837,8	1970	1076,7	2400	1315,6	3160	1737,8
-70	-56,7	260	126,7	690	365,6	1120	604,4	1550	843,3	1980	1082,2	2410	1321,1	3180	1748,9
-60	-51,1	270	132,2	700	371,1	1130	610,0	1560	848,9	1990	1087,8	2420	1326,7	3200	1760,0
-50	-45,6	280	137,8	710	376,7	1140	615,6	1570	854,4	2000	1093,3	2430	1332,2	3220	1771,1



CONVERSIONI

TABELLA DI CONVERSIONE DA GRADI CENTIGRADI A GRADI FARENHEIT

$$^{\circ}\text{F} = \frac{9}{5} \text{ }^{\circ}\text{C} + 32$$

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
-273	-459	-25	-13	190	374	405	761	620	1148	870	1598	1300	2372	1730	3146
-270	-454	-20	-4	195	383	410	770	625	1157	880	1616	1310	2390	1740	3164
-260	-436	-15	5	200	392	415	779	630	1166	890	1634	1320	2408	1750	3182
-250	-418	-10	14	205	401	420	788	635	1175	900	1652	1330	2426	1760	3200
-240	-400	-5	23	210	410	425	797	640	1184	910	1670	1340	2444	1770	3218
-230	-382	0	32	215	419	430	806	645	1193	920	1688	1350	2462	1780	3236
-220	-364	5	41	220	428	435	815	650	1202	930	1706	1360	2480	1790	3254
-210	-346	10	50	225	437	440	824	655	1211	940	1724	1370	2498	1800	3272
-200	-328	15	59	230	446	445	833	660	1220	950	1742	1380	2516	1810	3290
-195	-319	20	68	235	455	450	842	665	1229	960	1760	1390	2534	1820	3308
-190	-310	25	77	240	464	455	851	670	1238	970	1778	1400	2552	1830	3326
-185	-301	30	86	245	473	460	860	675	1247	980	1796	1410	2570	1840	3344
-180	-292	35	95	250	482	465	869	680	1256	990	1814	1420	2588	1850	3362
-175	-283	40	104	255	491	470	878	685	1265	1000	1832	1430	2606	1860	3380
-170	-274	45	113	260	500	475	887	690	1274	1010	1850	1440	2624	1870	3398
-165	-265	50	122	265	509	480	896	695	1283	1020	1868	1450	2642	1880	3416
-160	-256	55	131	270	518	485	905	700	1292	1030	1886	1460	2660	1890	3434
-155	-247	60	140	275	527	490	914	705	1301	1040	1904	1470	2678	1900	3452
-150	-238	65	149	280	536	495	923	710	1310	1050	1922	1480	2696	1910	3470
-145	-229	70	158	285	545	500	932	715	1319	1060	1940	1490	2714	1920	3488
-140	-220	75	167	290	554	505	941	720	1328	1070	1958	1500	2732	1930	3506
-135	-211	80	176	295	563	510	950	725	1337	1080	1976	1510	2750	1940	3524
-130	-202	85	185	300	572	515	959	730	1346	1090	1994	1520	2768	1950	3542
-125	-193	90	194	305	581	520	968	735	1355	1100	2012	1530	2786	1960	3560
-120	-184	95	203	310	590	525	977	740	1364	1110	2030	1540	2804	1970	3578
-115	-175	100	212	315	599	530	986	745	1373	1120	2048	1550	2822	1980	3596
-110	-166	105	221	320	608	535	995	750	1382	1130	2066	1560	2840	1990	3614
-105	-157	110	230	325	617	540	1004	755	1391	1140	2084	1570	2858	2000	3632
-100	-148	115	239	330	626	545	1013	760	1400	1150	2102	1580	2876	2010	3650
-95	-139	120	248	335	635	550	1022	765	1409	1160	2120	1590	2894	2020	3668
-90	-130	125	257	340	644	555	1031	770	1418	1170	2138	1600	2912	2030	3686
-85	-121	130	266	345	653	560	1040	775	1427	1180	2156	1610	2930	2040	3704
-80	-112	135	275	350	662	565	1049	780	1436	1190	2174	1620	2948	2050	3722
-75	-103	140	284	355	671	570	1058	785	1445	1200	2192	1630	2966	2060	3740
-70	-94	145	293	360	680	575	1067	790	1454	1210	2210	1640	2984	2070	3758
-65	-85	150	302	365	689	580	1076	795	1463	1220	2228	1650	3002	2080	3776
-60	-76	155	311	370	698	585	1085	800	1472	1230	2246	1660	3020	2090	3794
-55	-67	160	320	375	707	590	1094	810	1490	1240	2264	1670	3038	2100	3812
-50	-58	165	329	380	716	595	1103	820	1508	1250	2282	1680	3056	2110	3830
-45	-49	170	338	385	725	600	1112	830	1526	1260	2300	1690	3074	2120	3848
-40	-40	175	347	390	734	605	1121	840	1544	1270	2318	1700	3092	2130	3866
-35	-31	180	356	395	743	610	1130	850	1562	1280	2336	1710	3110	2140	3884
-30	-22	185	365	400	752	615	1139	860	1580	1290	2354	1720	3128	2150	3902

