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Power Conversion Chart

Watts, kilowatts, horsepower, BTU/h and tons of refrigeration

For: Engineers, HVAC technicians, electricians and mechanics

allunitconversions.com/power-conversion-chart
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EXACT DEFINITION	FORMULA	REVERSE	WORKED EXAMPLE
1 hp = 745.699 872 W; 1 BTU/h = 0.293 071 W; 1 RT = 12,000 BTU/h	kW = hp × 0.7457; W = BTU/h × 0.293 071	hp = kW ÷ 0.7457; BTU/h = W × 3.412 14	A 12,000 BTU/h air conditioner = 3.517 kW = 1 RT

Matrix values use 6 significant figures; tables are rounded as shown.

Factor matrix — 1 unit in every other unit

1 unit =	W	kW	MW	hp	PS	BTU/h	RT
1 W	1	0.001	1×10^{-6}	0.00134102	0.00135962	3.41214	2.84345×10^{-4}
1 kW	1,000	1	0.001	1.34102	1.35962	3,412.14	0.284345
1 MW	1×10^{6}	1,000	1	1,341.02	1,359.62	3.41214×10^{6}	284.345
1 hp	745.7	0.7457	7.457×10^{-4}	1	1.01387	2,544.43	0.212036
1 PS	735.499	0.735499	7.35499×10^{-4}	0.98632	1	2,509.63	0.209135
1 BTU/h	0.293071	2.93071×10^{-4}	2.93071×10^{-7}	3.93015×10^{-4}	3.98466×10^{-4}	1	8.33333×10^{-5}
1 RT	3,516.85	3.51685	0.00351685	4.71618	4.78159	12,000	1

Horsepower to kilowatts

Horsepower (mech.) (hp)	Kilowatts (kW)	Horsepower (mech.) (hp)	Kilowatts (kW)	Horsepower (mech.) (hp)	Kilowatts (kW)	Horsepower (mech.) (hp)	Kilowatts (kW)
1	0.75	**12**	8.95	**35**	26.10	**90**	67.11
2	1.49	**13**	9.69	**40**	29.83	**95**	70.84
3	2.24	**14**	10.44	**45**	33.56	**100**	74.57
4	2.98	**15**	11.19	**50**	37.28	**150**	111.85
5	3.73	**16**	11.93	**55**	41.01	**200**	149.14
6	4.47	**17**	12.68	**60**	44.74	**250**	186.42
7	5.22	**18**	13.42	**65**	48.47	**300**	223.71
8	5.97	**19**	14.17	**70**	52.20	**350**	260.99
9	6.71	**20**	14.91	**75**	55.93	**400**	298.28
10	7.46	**25**	18.64	**80**	59.66	**450**	335.56
11	8.20	**30**	22.37	**85**	63.38	**500**	372.85

BTU per hour to watts and tons of refrigeration

BTU per hour (BTU/h)	Watts (W)	Tons of refrigeration (RT)	BTU per hour (BTU/h)	Watts (W)	Tons of refrigeration (RT)
1,000	293	0.08	**18,000**	5,275	1.50
2,000	586	0.17	**24,000**	7,034	2.00
5,000	1,465	0.42	**30,000**	8,792	2.50
6,000	1,758	0.50	**36,000**	10,551	3.00
8,000	2,345	0.67	**42,000**	12,309	3.50
9,000	2,638	0.75	**48,000**	14,067	4.00
10,000	2,931	0.83	**60,000**	17,584	5.00
12,000	3,517	1.00	**100,000**	29,307	8.33
15,000	4,396	1.25			

Sources and method

- **NIST Special Publication 811** — Guide for the Use of the International System of Units (www.nist.gov/pml/special-publication-811)

Conversion values on this sheet are generated by the AllUnitConversions conversion library and automatically checked against the exact definitions above before the PDF is produced; reference tables are taken from the sources listed. Interactive version, corrections and more charts: **allunitconversions.com/power-conversion-chart**