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Speed Conversion Chart

km/h, mph, m/s, knots and ft/s, with the Beaufort wind scale

For: Drivers, pilots, sailors, cyclists and weather watchers

allunitconversions.com/speed-conversion-chart
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9 November 2026

EXACT DEFINITION	FORMULA	REVERSE	WORKED EXAMPLE
1 mph = 1.609 344 km/h; 1 kn = 1.852 km/h; 1 m/s = 3.6 km/h (all exact)	mph = km/h ÷ 1.609 344; km/h = m/s × 3.6	km/h = mph × 1.609 344; kn = km/h ÷ 1.852	100 km/h = 62.14 mph = 27.78 m/s = 54.0 kn

Matrix values use 6 significant figures; tables to 1–2 decimal places.

Factor matrix — 1 unit in every other unit

1 unit =	m/s	km/h	mph	kn	ft/s
1 m/s	1	3.6	2.23694	1.94384	3.28084
1 km/h	0.277778	1	0.621371	0.539957	0.911344
1 mph	0.44704	1.60934	1	0.868976	1.46667
1 kn	0.514444	1.852	1.15078	1	1.68781
1 ft/s	0.3048	1.09728	0.681818	0.592484	1

km/h to mph, m/s and knots

Kilometres per hour (km/h)	Miles per hour (mph)	Metres per second (m/s)	Knots (kn)
10	6.2	2.78	5.4
20	12.4	5.56	10.8
30	18.6	8.33	16.2
40	24.9	11.11	21.6
50	31.1	13.89	27.0
60	37.3	16.67	32.4
70	43.5	19.44	37.8
80	49.7	22.22	43.2
90	55.9	25.00	48.6
100	62.1	27.78	54.0

Kilometres per hour (km/h)	Miles per hour (mph)	Metres per second (m/s)	Knots (kn)
110	68.4	30.56	59.4
120	74.6	33.33	64.8
130	80.8	36.11	70.2
140	87.0	38.89	75.6
150	93.2	41.67	81.0
160	99.4	44.44	86.4
170	105.6	47.22	91.8
180	111.8	50.00	97.2
190	118.1	52.78	102.6
200	124.3	55.56	108.0

mph to km/h

Miles per hour (mph)	Kilometres per hour (km/h)
5	8.0
10	16.1
15	24.1
20	32.2
25	40.2
30	48.3
35	56.3
40	64.4
45	72.4
50	80.5

Miles per hour (mph)	Kilometres per hour (km/h)
55	88.5
60	96.6
65	104.6
70	112.7
75	120.7
80	128.7
85	136.8
90	144.8
95	152.9
100	160.9

Miles per hour (mph)	Kilometres per hour (km/h)
105	169.0
110	177.0
115	185.1
120	193.1
125	201.2
130	209.2
135	217.3
140	225.3
145	233.4
150	241.4

Beaufort wind scale

Force	Description	Knots	km/h
0	Calm	< 1	< 1
1	Light air	1–3	1–5
2	Light breeze	4–6	6–11
3	Gentle breeze	7–10	12–19
4	Moderate breeze	11–16	20–28
5	Fresh breeze	17–21	29–38
6	Strong breeze	22–27	39–49

Force	Description	Knots	km/h
7	Near gale	28–33	50–61
8	Gale	34–40	62–74
9	Strong gale	41–47	75–88
10	Storm	48–55	89–102
11	Violent storm	56–63	103–117
12	Hurricane force	≥ 64	≥ 118

Sources and method

- **International Yard and Pound Agreement (1959)** — 1 in = 25.4 mm, 1 ft = 0.3048 m, 1 lb = 0.453 592 37 kg exactly
- **NIST Special Publication 811** — Guide for the Use of the International System of Units (www.nist.gov/pml/special-publication-811)
- **World Meteorological Organization** — Beaufort wind force scale (knots); Met Office km/h equivalents

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/speed-conversion-chart**