Fluid Volume and Flow Chart

US and UK liquid measures, fluid ounces and flow rates

For: Cooks, plumbers, pool and irrigation installers, and engineers

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9 November 2026

EXACT DEFINITION	FORMULA	REVERSE	WORKED EXAMPLE
1 US gal = 3.785 411 784 L; 1 UK gal = 4.546 09 L; 1 US fl oz = 1/128 US gal	mL = US fl oz × 29.5735; mL = UK fl oz × 28.4131	L/min = US gpm × 3.785 41	A 10 US gpm pump = 37.85 L/min = 2.27 m³/h

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

Factor matrix — 1 unit in every other unit

1 unit =	mL	L	US fl oz	US cup	US pt	US qt	US gal	UK gal
1 mL	1	0.001	0.033814	0.00422675	0.00211338	0.00105669	2.64172×10^{-4}	2.19969×10^{-4}
1 L	1,000	1	33.814	4.22675	2.11338	1.05669	0.264172	0.219969
1 US fl oz	29.5735	0.0295735	1	0.125	0.0625	0.03125	0.0078125	0.00650527
1 US cup	236.588	0.236588	8	1	0.5	0.25	0.0625	0.0520421
1 US pt	473.176	0.473176	16	2	1	0.5	0.125	0.104084
1 US qt	946.353	0.946353	32	4	2	1	0.25	0.208169
1 US gal	3,785.41	3.78541	128	16	8	4	1	0.832674
1 UK gal	4,546.09	4.54609	153.722	19.2152	9.6076	4.8038	1.20095	1

Fluid ounces to millilitres (US and UK)

Fluid ounces	mL (US fl oz)	mL (UK fl oz)
1	29.6	28.4
2	59.1	56.8
3	88.7	85.2
4	118.3	113.7
5	147.9	142.1
6	177.4	170.5
7	207.0	198.9
8	236.6	227.3
9	266.2	255.7
10	295.7	284.1
11	325.3	312.5
12	354.9	341.0
13	384.5	369.4
14	414.0	397.8
15	443.6	426.2
16	473.2	454.6

Fluid ounces	mL (US fl oz)	mL (UK fl oz)
17	502.8	483.0
18	532.3	511.4
19	561.9	539.8
20	591.5	568.3
21	621.0	596.7
22	650.6	625.1
23	680.2	653.5
24	709.8	681.9
25	739.3	710.3
26	768.9	738.7
27	798.5	767.2
28	828.1	795.6
29	857.6	824.0
30	887.2	852.4
31	916.8	880.8
32	946.4	909.2

Flow: litres per minute to gallons per minute and m³/h

Litres per minute (L/min)	US gallons per minute (US gpm)	UK gallons per minute (UK gpm)	Cubic metres per hour (m³/h)
1	0.26	0.22	0.06
2	0.53	0.44	0.12
5	1.32	1.10	0.30

Litres per minute (L/min)	US gallons per minute (US gpm)	UK gallons per minute (UK gpm)	Cubic metres per hour (m³/h)
60	15.85	13.20	3.60
75	19.81	16.50	4.50
100	26.42	22.00	6.00

Litres per minute (L/min)	US gallons per minute (US gpm)	UK gallons per minute (UK gpm)	Cubic metres per hour (m^3/h)
10	2.64	2.20	0.60
15	3.96	3.30	0.90
20	5.28	4.40	1.20
25	6.60	5.50	1.50
30	7.93	6.60	1.80
40	10.57	8.80	2.40
50	13.21	11.00	3.00

Litres per minute (L/min)	US gallons per minute (US gpm)	UK gallons per minute (UK gpm)	Cubic metres per hour (m^3/h)
150	39.63	33.00	9.00
200	52.83	43.99	12.00
250	66.04	54.99	15.00
300	79.25	65.99	18.00
400	105.67	87.99	24.00
500	132.09	109.98	30.00
1,000	264.17	219.97	60.00

US and UK measures compared

From	To	Multiply by
US fluid ounces (US fl oz)	UK fluid ounces (UK fl oz)	1.040843
US pints (US pt)	UK pints (UK pt)	0.8326742
US gallons (US gal)	UK gallons (UK gal)	0.8326742
Cubic feet (ft^3)	Litres (L)	28.31685
Cubic inches (in^3)	Cubic centimetres (cm^3)	16.38706
Cubic feet per minute (CFM)	Cubic metres per hour (m^3/h)	1.699011

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/fluid-conversion-chart**