

单位换算表

国际单位制 (SI) 和英制或美制单位之间的换算

物理量	英制或美制单位换算为国际单位制		国际单位制换算为英制或美制单位	
加速度	1 ft/s ²	= 0.30480 m/s ²	1 m/s ²	= 3.28083985 ft/s ²
面积	1 sq in 1 sq ft 1 sq yd 1 sq mi	= 0.64516·10 ⁻³ m ² = 0.09290304 m ² = 0.83612736 m ² = 2.589988·10 ⁶ m ²	1 m ² 1 m ² 1 m ² 1 m ²	= 1.550003·10 ³ sq in = 10.76391 sq ft = 1.195990 sq yd = 0.3861022·10 ⁻⁶ sq mi
密度	1 lb/ft ³	= 16.01846 kg/m ³	1 kg/m ³	= 0.06242797 lb/ft ³
动态黏滞度	1 lbf s/sqft	= 47.88026 Ns/m ²	1 Ns/m ²	= 20.88543·10 ⁻³ lbf s/sqft
能量	1 hp hr 1 PSh 1 BTU 1 lbf-ft	= 2.684520·10 ⁶ J = 2.6477955·10 ⁶ J = 1055.056 J = 1.355818 J	1 J 1 J 1 J 1 J	= 372.5061·10 ⁻⁹ hp hr = 377.6727·10 ⁻⁹ PSh = 947.8171·10 ⁻⁶ BTU = 737.5621·10 ⁻³ lbf-ft
力	1 pdl 1 lbf = 1 lb wt 1 sh tn 1 l tn	= 138.2550·10 ⁻³ N = 4.448222 N = 8896.443 N = 9964.016 N	1 N 1 N 1 N 1 N	= 7.233014 pdl = 224.8089·10 ⁻³ lbf; lb wt = 112.4045·10 ⁻⁶ sh tn = 100.3611·10 ⁻⁶ l tn
热导率	1 BTU/(in h R) 1 BTU/(ft h R) 1 BTU/(yd h R)	= 20.76882 W/(mK) = 1.730735 W/(mK) = 576.9116·10 ⁻³ W/(mK)	1 W/(mK) 1 W/(mK) 1 W/(mK)	= 48.14911·10 ⁻³ BTU/(in h R) = 577.7893·10 ⁻³ BTU/(ft h R) = 1.73368 BTU/(yd h R)
传热系数	1 BTU/(sq in h R) 1 BTU/(sq ft h R) 1 BTU/(sq yd h R)	= 817.6699 W/(m ² K) = 5.6782633 W/(m ² K) = 630.9181·10 ⁻³ W/(m ² K)	1 W/(m ² K) 1 W/(m ² K) 1 W/(m ² K)	= 1.222987·10 ⁻³ BTU/(sq in h R) = 176.1102·10 ⁻³ BTU/(sq ft h R) = 1.584992 BTU/(sq yd h R)
长度	1 in 1 ft 1 yd 1 mi	= 25.4·10 ⁻³ m = 0.3048 m = 0.9144 m = 1609.344 m	1 m 1 m 1 m 1 m	= 39.37008 in = 3.280840 ft = 1.093613 yd = 0.6213712·10 ⁻³ mi
质量 (惯性)	1 lb 1 英石 1 四分之一英担 1 长吨 (英制) 1 短吨 (美制)	= 0.45359247 kg = 6.3502932 kg = 12.700586 kg = 1,016.0469 kg = 907.18474 kg	1 kg 1 kg 1 kg 1 kg 1 kg	= 2.204623 lb = 157.47304·10 ⁻³ 英石 = 78.73652·10 ⁻³ 四分之一英担 = 984.2065·10 ⁻⁶ 长吨 (英制) = 1.102311·10 ⁻³ 短吨 (美制)
质量流	1 lb/min 1 lb/min 1 lb/min	= 27.2155422 kg/h = 7.55987283·10 ⁻³ kg/s = 0.0272155422 t/h	1 kg/h 1 kg/s 1 t/h	= 0.036743710 lb/min = 132.277357 lb/min = 36.743710 lb/min

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物理量	英制或美制单位换算为国际单位制		国际单位制换算为英制或美制单位	
功率	1 BTU/s 1 hp 1 PS = 1 cv 1 ft Lb/s	= 1055.056 W = 745.6999 W = 735.49875 W = 1.355818 W	1 W 1 W 1 W 1 W	= 947.8171 · 10 ⁻⁶ BTU/s = 1.341022 · 10 ⁻³ hp = 1.359622 · 10 ⁻³ PS; cv = 0.7375621 ft Lb/s
压力	1 psi 1 psi 1 psf 1 in H ₂ O 1 in Hg 1 ft H ₂ O 1 ft Hg	= 6894.757 N/m ² (Pa) = 0.06895 bar = 47.88026 N/m ² (Pa) = 249.08891 N/m ² (Pa) = 3386.379 N/m ² (Pa) = 2989.067 N/m ² (Pa) = 40636.55 N/m ² (Pa)	1 N/m ² (Pa) 1 bar 1 N/m ² (Pa) 1 N/m ² (Pa) 1 N/m ² (Pa) 1 N/m ² (Pa) 1 N/m ² (Pa)	= 145.04 · 10 ⁻⁶ psi = 14.504 psi = 20.88543 · 10 ⁻³ psf = 4.014631 · 10 ⁻³ in H ₂ O = 295.3007 · 10 ⁻⁶ in Hg = 334.5526 · 10 ⁻⁶ ft H ₂ O = 24.60839 · 10 ⁻⁶ ft Hg
比焓	1 BTU/lb	= 2326 J/kg	1 J/kg	= 429.9226 · 10 ⁻⁶ BTU/lb
比热容	1 BTU/(lb R)	= 4186.8 J/(kg K)	1 J/(kg K)	= 238.8459 · 10 ⁻⁶ BTU/(lb R)
温度	T(°F) 0 K	= 9/5 · T(°C) + 32 = -273.15°C	T(°C) 0°C	= 5/9 · (T(°F) - 32) = 273.15 K
扭矩	1 in lbf 1 ft lbf	= 0.11300 Nm = 1.35582 Nm	1 Nm 1 Nm	= 8.8496 in lbf = 0.73756 ft lbf
速率	1 ft/min 1 mph	= 0.00508 m/s = 1.609344 km/h	1 m/s 1 km/h	= 196.85039 ft/min = 0.62137119 mph
体积	1 cu in 1 cu ft 1 cu yd 1 加仑 (英制) 1 加仑 (美制)	= 16.38706 · 10 ⁻⁶ m ³ = 0.02831685 m ³ = 0.7645549 m ³ = 4.54609 · 10 ⁻³ m ³ = 3.785411784 · 10 ⁻³ m ³	1 m ³ 1 m ³ 1 m ³ 1 m ³ 1 m ³	= 61.02374 · 10 ⁻³ cu in = 35,31467 cu ft = 1.307951 cu yd = 219.96925 加仑 (英制) = 264.17205 加仑 (美制)
体积流	1 加仑/分钟 (美制) 1加仑/分钟 (英制) 1ft ³ /s 1ft ³ /s	= 0.22712 m ³ /h = 0.272766 m ³ /h = 101.940648 m ³ /h = 0.02831685 m ³ /s	1 m ³ /h 1 m ³ /h 1 m ³ /h 1 m ³ /s	= 4.40288 加仑/分钟 (美制) = 3.6661 加仑/分钟 (英制) = 9.809629 · 10 ⁻³ ft ³ /s = 35.3146667 ft ³ /s

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物理量	公制约当单位
力	1 N = 1 J/m = 1 m kg/s ²
质量	1 t = 10 ³ kg = 1 Mg; 1 g = 10 ⁻³ kg
质量流	1 t/h = 3.6 ⁻¹ kg/s; 1 kg/h = 3600 ⁻¹ kg/s
压力	1 Pa = 1 N/m ² = 1 kg/(m s ²); 1 bar = 10 ⁵ Pa
速率	1 km/h = 3.6 ⁻¹ m/s
体积	1 l = 1 dm ³ = 10 ⁻³ m ³
体积流	1 m ³ /h = 3600 ⁻¹ m ³ /s; 1 l/min = 60,000 ⁻¹ m ³ /s

换算系数

十的幂	前缀	符号
10 ⁶	mega	M
10 ³	kilo	k
10 ²	Hecto	h
10 ⁻¹	deci	d
10 ⁻³	milli	m
10 ⁻⁶	micro	μ
10 ⁻⁹	nano	n

前缀和符号

阿海珐股份有限公司
联系方式: test-labs@areva.com