

CONVERSION US · UK · METRIC · SI UNITS

FOR THERMAL ENGINEERS

AB&Co

Individual Thermal Solutions
with Boldness & Care
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BASICS | GRUNDLÆGGENDE

Length | Længde

1 m	=	39,37	" in	=	3,281	' feet
1 in "	=	25,40	mm	=	$2,540 \cdot 10^{-2}$	m
1 ft '	=	304,8	mm	=	0,3048	m
1 Nautical Mile	=			=	1,853	km

Area | Areal

1 m ²	=	10,76	ft ²	=	1550	ln ²
1 ft ²	=	$9,290 \cdot 10^{-2}$	m ²			
1 ln ²	=	$6,452 \cdot 10^{-4}$	m ²			

Volume | Volumen

1 m ³	=	$6,102 \cdot 10^4$	in ³			
1 m ³	=	35,31	cf ft ³	=	264,2	US Gallon
1 cf ft ³	=	$2,832 \cdot 10^{-2}$	m ³	=	28,32	Liter dm ³
1 in ³	=	$1,639 \cdot 10^{-5}$	m ³	=	$1,639 \cdot 10^{-2}$	Liter dm ³
1 US Gallon	=	$3,785 \cdot 10^{-3}$	m ³	=	3,785	Liter dm ³
1 UK Gallon	=	$4,546 \cdot 10^{-3}$	m ³	=	4,546	Liter dm ³

For ideal Gasses : Standard Cubicfeet (SCF) at 70°F (21,1°C) / 1 Atm. abs.
 Normal cubicmeter (m_n³) at 0°C / 1 Atm. abs. (1,013 bar)

1 m _n ³ Air	=	38,04	SCF Air	=	1,292	kg Air
1 SCF Air	=	$2,629 \cdot 10^{-2}$	m _n ³ Air	=	$3,397 \cdot 10^{-2}$	kg Air

Specific Volume | Specifik Volumen

1 m ³ /kg	=	16,02	ft ³ /lb
1 ft ³ /lb	=	$6,243 \cdot 10^{-2}$	m ³ /kg

Density | Massefylde

1 kg/m ³	=	$6,243 \cdot 10^{-2}$	lb/ft ³
1 lb/ft ³	=	16,02	kg/m ³

Mass | Masse

1 kg	=	2,205	lb lbs
1 lb lbs	=	0,4536	kg

Velocity | Hastighed

1	m/s	=	3,281	ft/s
1	m/s	=	196,9	ft/min FPM
1	FPM	=	$5,080 \cdot 10^{-3}$	m/s
1	ft/sec.	=	0,3048	m/s
1	Knot	=	1,853	km/h
			1 Nautical Mile / hour	

Volume Flow | Volumenstrøm

1	m ³ /h	=	0,5885	CFM ft ³ /min
1	CFM	=	1,699	m ³ /h

For ideal gasses :

Standard cubicfeet per Minute (SCFM) / 70°F / 1 Atm. abs.

Normal cubicmeter per hour (m_n³/h) / 0°C / 1 Atm. abs.

1	SCFM luft	=	1,577	m _n ³ /h Air (only)
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Mass Flow | Massestrøm

1	kg/h	=	2,205	lb/h
1	lb/h	=	0,4536	kg/h

Pressure | Tryk

1	bar	=	14,50	psi
1	bar	=	100,0	kPa
1	bar	=	0,9869	Atm.
1	mbar	=	0,7501	mmHg Torr
1	mbar	=	10,20	mmWG
1	mbar	=	100,0	Pa
1	psi lbf/in ²	=	$6,895 \cdot 10^{-2}$	bar
1	psi lbf/in ²	=	$6,804 \cdot 10^{-2}$	Atm.
1	psi lbf/in ²	=	6,895	kPa

Kinematic Viscosity | Kinematisk Viskositet

1	cSt	=	$1,076 \cdot 10^{-5}$	ft ² /s
1	cSt	=	$1,000 \cdot 10^{-6}$	m ² /s
1	ft ² /s	=	$9,290 \cdot 10^4$	cSt
1	ft ² /s	=	$9,290 \cdot 10^{-2}$	m ² /s

Dynamic Viscosity | Dynamisk Viskositet

1	Pa·s	=	1.000	cP
1	Pa·s	=	0,6720	lb/(ft·s)
1	cP	=	$1,000 \cdot 10^{-3}$	Pa·s Ns/m ²
1	cP	=	$1,000 \cdot 10^{-3}$	kg/(m·s)
1	lb/(ft·s)	=	1,488	Pa·s
1	lb/(ft·s)	=	1488	cP mPa·s

Temperature | Temperatur

$$^{\circ}\text{C} \text{ | Celsius} = 5 \cdot (^{\circ}\text{F} - 32) / 9$$

$$^{\circ}\text{F} \text{ | Fahrenheit} = 32 + 9 \cdot ^{\circ}\text{C} / 5$$

Heat Content & Energy | Varme & Energi

1	kJ kN·m	=	0,9478	Btu
1	kJ kN·m	=	0,2388	Kcal
1	Btu	=	1,055	kJ
1	Btu	=	0,2520	Kcal
1	kcal	=	4,187	kJ
1	kcal	=	3,968	Btu
1	kWh	=	3600	kJ
1	kWh	=	859,8	Kcal

Heat Load | Power | Effekt | Varmestrøm

1	kW	=	3412	Btu/h
1	kW	=	859,8	Kcal/h
1	Btu/h	=	$2,931 \cdot 10^{-4}$	kW
1	Btu/h	=	0,2520	Kcal/h
1	kcal/h	=	$1,163 \cdot 10^{-3}$	kW
1	kcal/h	=	3,968	Btu/h
1	Boiler HP	=	9,81	kW
1	Boiler HP	=	15,65	kg steam /h

Specific Heat | Varmefylde

1	kJ/(kg·K)	=	0,2388	Btu/(lb·°F)
1	kJ/(kg·K)	=	0,2388	kcal/(kg·°C)
1	Btu/(lb·°F)	=	4,187	kJ/(kg·K)
1	kcal/(kg·°C)	=	4,187	kJ/(kg·K)

Conductivity | Varmeledning

1	W/(m·K)	=	0,8598	kcal/(m·h·°C)
1	W/(m·K)	=	0,5778	Btu/(ft·h·°F)
1	kcal/(m·h·°C)	=	1,163	W/(m·K)
1	Btu/(ft·h·°F)	=	1,731	W/(m·K)

Heat Transmission | Varmetransmission

1	W/(m ² ·K)	=	0,8598	kcal/(m ² ·h·°C)
1	W/(m ² ·K)	=	0,1761	Btu/(ft ² ·h·°F)
1	kcal/(m ² ·h·°C)	=	1,163	W/(m ² ·K)
1	Btu/(ft ² ·h·°F)	=	5,679	W/(m ² ·K)

Evaporation Heat | Forvampningsvarme

1	kJ/kg	=	0,430	Btu/lb
1	Btu/lb	=	2,326	kJ/kg