

## CONVERSION TABLES

### PRESSURE

Unit of measure of SI system: pascal (Pa) = N/m<sup>2</sup>

		Unit of measure									
		Pa	bar	at	mm Hg	kgf/m <sup>2</sup>	psi	lbf/ft <sup>2</sup>	in w.	in Hg	ft w.
pascal	Pa	1	10 <sup>-5</sup>	1,0197x10 <sup>-5</sup>	0,0075	0,10197	0,145x10 <sup>-3</sup>	0,02088	0,00401	0,295x10 <sup>-3</sup>	0,335x10 <sup>-3</sup>
bar	bar	10 <sup>5</sup>	1	1,0197	750,07	10197	14,505	2088	401,46	29,53	33,456
atmosphere = kgf/cm <sup>2</sup>	at	98070	0,9807	1	735,56	10000	14,223	2048,16	393,71	28,96	32,808
millimetre Hg	mm Hg	133,32	1,3332x10 <sup>-3</sup>	1,3595x10 <sup>-3</sup>	1	13,595	0,0193	1,392	0,5353	0,0394	0,0446
kilogramme per m <sup>2</sup>	kgf/m <sup>2</sup>	9,807	9,807x10 <sup>-5</sup>	10 <sup>-4</sup>	0,0735	1	0,00142	0,205	0,0394	0,0029	0,0033
pounds per square inch	psi	6894,14	0,06894	0,0703	51,719	703,07	1	144	27,683	2,0362	2,3069
pounds per square foot	lbf/ft <sup>2</sup>	47,876	4,7876x10 <sup>-4</sup>	4,8824x10 <sup>-4</sup>	0,7183	4,8824	0,00694	1	0,1922	0,01414	0,01602
pounds of w.c.	in w.	249,09	0,00249	0,00254	1,868	25,4	0,03614	5,203	1	0,07355	0,0833
pounds of mercury	in Hg	3386,36	0,03386	0,03453	25,4	345,34	0,4912	70,731	13,595	1	1,1329
feet of w.c.	ft w.	2989	0,02989	0,03048	22,42	304,8	0,4334	62,43	12	0,8827	1

### POWER (mechanical, electrical, thermal)

Unit of measure of SI system: watt (W)

		Unit of measure								
		W	kcal/h	kgm/s	BTU/h	ft l/s	BHP (UK)	CV	ton (UK)	ton (US)
watt	W	1	0,8605	0,102	3,413	0,7375	1,341x10 <sup>-3</sup>	1,360x10 <sup>-3</sup>	0,284x10 <sup>-3</sup>	0,318x10 <sup>-3</sup>
kilogram calorie/hour	kcal/h	1,1628	1	0,1186	3,9683	0,8576	1,559x10 <sup>-3</sup>	1,581x10 <sup>-3</sup>	0,331x10 <sup>-3</sup>	0,370x10 <sup>-3</sup>
kilogrammeter/second	kgm/s	9,807	8,434	1	33,47	7,233	1,315x10 <sup>-2</sup>	1,333x10 <sup>-2</sup>	2,788x10 <sup>-3</sup>	3,123x10 <sup>-3</sup>
BTU/h	BTU/h	0,293	0,252	0,02988	1	0,2161	0,393x10 <sup>-3</sup>	0,398x10 <sup>-3</sup>	0,833x10 <sup>-4</sup>	0,933x10 <sup>-4</sup>
pound foot/second	ft l/s	1,356	1,166	0,1383	4,627	1	1,818x10 <sup>-3</sup>	1,844x10 <sup>-3</sup>	0,386x10 <sup>-3</sup>	0,432x10 <sup>-3</sup>
horsepower brake (UK)	BHP (UK)	745,7	641,3	76,04	2547	550	1	1,0139	0,212	0,2375
horsepower (metric)	CV	735,5	632,53	75	2512,2	542,4	0,986	1	0,2091	0,2342
ton (cooling UK)	ton (UK)	3516,85	3024,5	358,6	12000	2593,7	4,716	4,782	1	1,12
ton (cooling US)	ton (US)	3140,05	2700,44	320,18	10717	2315,8	4,211	4,269	0,893	1



Tel. 049 5386344 R.a. 12 linee

Fax. 049 5386300

[info@hitema.it](mailto:info@hitema.it) [www.hitema.it](http://www.hitema.it)

## CONVERSION TABLES

### VOLUME

Unit of measure of SI system: cubic meter at second (m<sup>3</sup>/s)

		Unit of measure								
		m <sup>3</sup> /s	m <sup>3</sup> /h	L/s	cm <sup>3</sup> /s	cfm	cfh	gpm	gph	y <sup>3</sup> /min
cubic meter/second	m <sup>3</sup> /s	1	3600	10 <sup>3</sup>	10 <sup>6</sup>	2118,88	127133	15850	951,02x10 <sup>3</sup>	78,477
cubic meter/hour	m <sup>3</sup> /h	0,2778x10 <sup>-3</sup>	1	0,2778	277,778	0,5886	35,315	4,4029	264,17	0,0218
liter/second	L/s	10 <sup>-3</sup>	3,6	1	103	2,1189	127,134	15,85	951,02	0,0785
cubic centimeter/second	cm <sup>3</sup> /s	10 <sup>-6</sup>	0,0036	10 <sup>-3</sup>	1	0,0212	0,1271	0,0158	0,951	0,785x10 <sup>-4</sup>
cubic foot per minute	cfm	0,4719x10 <sup>-3</sup>	1,699	0,4719	471,95	1	60	7,48	448,83	0,037
cubic foot per hour	cfh	0,7866x10 <sup>-5</sup>	0,02832	0,7866x10 <sup>-2</sup>	7,866	0,01667	1	0,1247	7,48	0,6173x10 <sup>-3</sup>
gallon per minute	gpm	0,6309x10 <sup>-4</sup>	0,2271	0,06309	63,09	0,1337	8,0208	1	60	4,951x10 <sup>-3</sup>
gallon per hour	gph	0,1052x10 <sup>-5</sup>	3,785x10 <sup>-3</sup>	0,1052x10 <sup>-2</sup>	1,0515	2,228x10 <sup>-3</sup>	0,1337	0,01667	1	8,252x10 <sup>-4</sup>
cubic yard/minute	y <sup>3</sup> /min	0,01274	45,873	12,743	12742,6	27	1620	201,97	12118,44	1

## SOLUTIONS OF WATER AND ETYLENE GLYCOL

		% Ethylene glycol by weight					
		0	10	20	30	40	50
Freezeing temperature	(°C)	0	-3,7	-8,7	-15,3	-23,5	-35,6
Cooling capacity correction factor	Kf1	1	0,99	0,98	0,97	0,96	0,93
Absorbed power correction factor	Kp1	1	0,99	0,98	0,98	0,97	0,95
Pressure drop correction factor	Kdp1	1	1,083	1,165	1,248	1,33	1,413
Water flow correction factor (1)	K <sub>FWE1</sub>	1	1,02	1,05	1,07	1,11	1,13

Multiply the unit performance by the correction factors given in the table.

(1) K<sub>FWE1</sub> = correction factor (referred to the cooling capacity corrected by Kf) to obtain the water flow with a delta t of 5°C.



Tel. 049 5386344 R.a. 12 linee

Fax. 049 5386300

[info@hitema.it](mailto:info@hitema.it) [www.hitema.it](http://www.hitema.it)

## FOULING FACTORS

		Evaporator fouling factor (m <sup>2</sup> °C/W)		
		5x10 <sup>-5</sup>	1x10 <sup>-4</sup>	4x10 <sup>-4</sup>
Cooling capacity correction factor	Kf2	1	0,98	0,89
Absorbed power correction factor	Kp2	1	0,99	0,93

To determine the effect of fouling on the evaporator, or to the desuperheater and heat recovery, multiply the cooling capacity Pf by Kf2 and the absorbed power by Kp2.

## CONDENSER CORRECTION FACTORS

		Altitudine					
		0	500	1000	1500	2000	2500
Capacity multiplier	Kf3	1	0,99	0,98	0,977	0,972	0,96
Absorbed power multiplier	Kp3	1	1,005	1,012	1,018	1,027	1,034
Derating of max ambient temperature (*)	Kt3 (°C)	0	0,6	1,1	1,8	2,5	3,3

Multiply the unit performance by the correction factors given in the table.

(\*) To obtain the maximum ambient temperature, subtract the values indicated from the maximum ambient temperature in the performance table.

## SOUND PRESSURE LEVELS

Distance <sup>(2)</sup> L(m)	Kdb
1	9,5
3	0
5	-4,4
10	-10,5

In the tables where you found technical data of machines, sound pressure is referred to free spherical field, 3 m from the unit coil side, 1 m from support base.

To calculate the sound pressure level at different distance, use the formula:

$$dB(A)L = dB(A)3m + Kdb.$$



Tel. 049 5386344 R.a. 12 linee

Fax. 049 5386300

[info@hitema.it](mailto:info@hitema.it) [www.hitema.it](http://www.hitema.it)