

CONDENSING UNIT CAPACITY CALCULATOR

CONDENSING UNIT	DATE	REFRIGERANT
SAPTXN-4.5 LOW	2015-04-15	R404A
COMPRESSOR	CONDENSER	FAN
1 x L63A183DBEA	AT 40-772	1 x A3G450-A002-03

EVAP. TEMP. [C]	-40	-35	-30	-25	-20	-15	-10	-5
AMBIENT TEMP. [C]	Qo [W]							
27	1 587	2 264	3 080	4 013	5 037	6 126	7 252	-
32	-	1 921	2 680	3 547	4 499	5 510	6 553	-
38	-	-	2 205	2 998	3 867	4 788	5 736	-
43	-	-	1 824	2 558	3 361	4 210	5 079	-
	Pe [W]							
27	1 459	1 808	2 157	2 516	2 895	3 308	3 768	-
32	-	1 756	2 116	2 493	2 896	3 339	3 837	-
38	-	-	2 037	2 438	2 875	3 361	3 909	-
43	-	-	1 948	2 375	2 844	3 368	3 963	-
	CONDENSING TEMP. [°C]							
27	32,3	34,1	36,1	38,4	40,8	43,4	46,2	-
32	-	38,4	40,3	42,5	44,9	47,4	50,1	-
38	-	-	45,4	47,5	49,7	52,2	54,8	-
43	-	-	49,6	51,6	53,8	56,2	58,7	-

EQUATIONS

POLYNOMIAL EQUATION

$$X = C1 + C2*(S)+C3*(D) + C4*(S^2) + C5*(S*D) + C6*(D^2)+ C7*(S^3)+ C8*(D*S^2)+ C9*(S*D^2)+ C10*(D^3)$$

where X = cooling capacity in watt, power consumption in watt, current consumption in amperes

S = saturation temperature at dew point of suction pressure in Fahrenheit or Celsius

D = saturation temperature at dew point of discharge pressure in Fahrenheit or Celsius

CONDENSER EQUATION

$$Q_k = Q_k(15K)*(T_k-T_{amb})/(A*15)$$

where

Q_k(15K) = condensing capacity at 15K difference between T_k condensing temp. and T_{amb} ambient temp.

A = fouling factor

ASSUMPTIONS

All data based on dew point temperature

SUCTION GAS TEMP. 4.4 deg C

SUBCOOLING 0 K