UATYQ-AFC3Y1

***3rd step*: INPUT IN THE COOLING CAPACITY TABLE**

UATYQ50A**FC3Y**1:

The desired conditions are:

$T_{in,sup.coil}$: 29,4°C

$T_{in,ext.coil}$: 33,5°C

Cooling Capacity and Power Input Table (EN 14511)																	
Air Flow	Air Conditiion on Supply Coil		Air conditions on External Coil														
	T DB	TWB	20			25			30			35			40		
[m3/h]	[°C]	[°C]	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI	TC	SHC	PI
12100	24	17	53,8	39,9	14,88	52,0	39,1	16,54	50,2	38,3	18,21	48,4	37,5	19,88	46,5	36,7	21,54
	25	18	54,9	40,6	14,96	52,8	39,7	16,61	50,7	38,8	18,26	48,6	37,9	19,90	46,6	37,0	21,55
	26	18	55,9	41,3	15,05	53,6	40,4	16,68	51,3	39,4	18,30	48,9	38,4	19,93	46,6	37,4	21,56
	27	19	57,0	42,1	15,14	54,4	41,0	16,74	51,8	39,9	18,35	**49,2**	**38,8**	**19,96**	46,6	37,8	21,56
	28	20	58,6	41,9	15,28	55,9	40,8	16,94	53,1	39,7	18,59	50,4	38,6	20,24	47,7	37,5	21,90
	30	22	62,0	41,5	15,58	58,9	40,4	17,32	55,9	39,2	19,07	52,8	38,1	20,82	49,8	37,0	22,56

Interpolate in the following way among the 4 highlighted conditions to obtain the desired conditions:

1) interpolate between the *air conditions on the external coil* of 30 and 35 °C with 28° C of *air conditions on the supply coil*:

$$TC_1 = TC_{30°C} - \frac{(TC_{30°C} - TC_{35°C})}{(30-35)} * (T_{in,ext.coil} - 35) = 53,1 - \frac{(53,1 - 50,4)}{(30-35)} * (33,5 - 35) = 52,3 \text{ kW}$$

2) interpolate between the *air conditions on the external coil* of 30 and 35 °C with 30° C of *air conditions on the supply coil*:

$$TC_2 = TC_{30°C} - \frac{(TC_{30°C} - TC_{35°C})}{(30-35)} * (T_{in,ext.coil} - 35) = 55,9 - \frac{(55,9 - 52,8)}{(30-35)} * (33,5 - 35) = 54,97 \text{ kW}$$

3) make the final interpolation with the above results in order to obtain the final value at 29,4°C of *air conditions on the supply coil*:

$$TC = TC_1 - \frac{(TC_1 - TC_2)}{(28-30)} * (T_{in,ext.coil} - 30) = 52,3 - \frac{(52,3 - 54,97)}{(28-30)} * (29,4 - 30) = 53,1 \text{ kW}$$

The same interpolations should be done for the sensible cooling capacity and the power input. Moreover, the same method is to be used to calculate the **heating capacities and power input** at desired conditions.

!! For the units that don't have thermodynamic heat recovery on the external coil, the $T_{in,ext.coil} = T_{outdoor}$