

R404A

1. Calculation of the ECO mass flow

		p, bara	h <sub>L</sub> , kJ/kg	h, kJ/kg
tc_Dew, °C	45,0	20,47		
tms_Dew, °C	5,0	7,06		367,746
tc_Bubble (t4), °C	44,7	20,47	267,930	
tcu (t4u), °C (tcu-tms=10K)	15,0	20,47	221,306	
m_LP (m1-2), kg/h	3760,0			
m_HP (m2-3), kg/h	5516,3			
m_ECO (m4-6), kg/h	1756,3			

Remarks:

3x HSK6461-60 at to=-35°C and tm=+5°C have been selected. See attached compressor calculation.

2. Calculation of the suction gas superheat of the upper stage

		p, bara	h <sub>L</sub> , kJ/kg	h, kJ/kg
DGT_LP, °C	41,0	7,06		403,793
hoh_HP, kJ/kg	392,316	7,06		
toh_HP, °C	29,4	7,06		
Dtoh_HP, K	24,4			
1x HSK6461-60				
tm, °C	5			
tc, °C	45			
Dtoh, K	24,4			
m_HP, kg/h	4778 (at CR100%)			
	3583,5 (approx. at CR75%)			
	2389 (approx. at CR50%)			

Remarks:

2x HSK6461-60 at tm=+5°C and tc=+45°C have been selected. See attached compressor calculation.

It is very important to program the right control logic for the system in order to ensure a stable operation.

At full-load operation, the medium temperature will be adjusted to a value lower than +5°C, if 1x HSK6461-60 at CR75% and 1x HSK6461-60 at CR50% were operated in the upper stage. On the contrary, the medium temperature will be adjusted to a value higher than +5°C, if only 1x HSK6461-60 at CR100% were operated in the upper stage.

