

RSWRefrigerant used: CO₂.Hovedresultater (version japan)uten linker.xls
Incr. GC water flow

R744

Steady state[50 10 10 2007](#)

TEST CONDITIONS		Unit	Set value
Discharge pressure	bar		50
Compressor rotation speed (manual reading)	RPM		1450
Brine flow (no bypass)	l/min		-
Vessel brine inlet temperature at cooling down startup	°C		10
Vessel brine inlet temperature at steady state	°C		-1
Cooling water temperature	°C		10
PERFORMANCE		Unit	Value
Cooling capacity, gas cooler	kW		16,4
Power consumption (compressor+pump)	kW		12,1
Power consumption compressor	kW		8,9
COP	-		1,3
COP uten pumpe	-		1,8
EVAPORATOR		Unit	Value
Evaporation temperature (compressor suction)	°C		-5,2
Inlet temperature, CO ₂	°C		-2,8
Outlet temperature, CO ₂	°C		-3,1
Outlet superheat	K		0,3
Pressure drop, CO ₂	kPa		55,4
			10,0
Cooling capacity, CO ₂ (compressor mass flow+ GC capacity)	kW		16,4
Cooling capacity, brine	kW		15,9
Cooling capacity, electric	kW		11,9
Inlet temperature, brine	°C		0,0
Outlet temperature, brine	°C		-0,4
Flow brine	l/min		569
Temperature, brine reservoir inlet	°C		-0,6
Temperature, brine reservoir outlet	°C		-0,4
LMTD	°C		5,0
Overall heat transfer coefficient (CO ₂ area)	W/m ² K		909
Overall heat transfer coefficient (H ₂ O area)	W/m ² K		1015
Cooling down time from 10 to -1°C	min		
Refrigerant level	%		64
COMPRESSOR		Unit	Value
Suction pressure	bara		30,3
Discharge pressure	bara		50,5
Suction temperature, CO ₂	°C		-4,9
Discharge temperature, CO ₂	°C		41,4
Suction superheat	K		0,3
Power consumption	kW		9,0
Power consumption, calculated	kW		8,5
Rotation frequency	RPM		1451
Flow CO ₂ , calculated (RPM, vol. eff, density)	kg/min		14,22
GAS COOLER, Water		Unit	Value
Pressure drop	kPa		262,3
Inlet temperature, CO ₂	°C		40,2
Outlet temperature, CO ₂	°C		15,0
Inlet temperature, throttle valve	°C		13,8
Inlet temperature, water	°C		10,0
Outlet temperature, water	°C		14,2
Temperature Approach, CO ₂ outlet	K		5
Flow water	kg/h		4750
Capacity, water heating	kW	50bar	23,4