

Portata gas in HRSG	50	kg/s
cp gas	1.10	kJ/kgK
Tgas	450.0	°C
peva	40.00	bar
pvap sh	36.00	bar
Tvap sh	420.00	°C
h vap sh	3267.7	kJ/kg
DTpinch point	10.00	°C
DTsubcooling	10.00	°C
cp liq sat	4.81	kJ/kgK
Dp eco	10.00	bar
Qloss HRSG	0.50	%
eff. Idr. Pompa	0.75	
eff. Mecc-el pompa	0.92	
Tacqua cog in	90.00	°C
Tacqua cog out	120.00	°C
COP frigo ass.	0.70	
U HRSG	400	W/m2K
U cond	4000	W/m2K

	Dati
	Assunzioni
	Tabelle vapore/Mollier

* calcoli necessari anche per la
risoluzione dei soli quesiti e-f-g

b)	h liq sat @ 40 bar	1087.4	kJ/kg	*
	h out eco	1039.3	kJ/kg	*
	Dh acqua eva + sh	2228.3	kJ/kg	*
	Teva	250.4	°C	*
	Tgas pinch point	260.4	°C	*
	Qgas eva+sh	10378.2	kW	*
	m vap	4.66	kg/s	*
	Tcond	130	°C	*
	pcond	2.7	bar	
	s vap sh	6.895	kJ/kgK	
	his out turb	2667.3	kJ/kg	
	Dhis turbina	600.4	kJ/kg	
	eta is turbina vapore	0.85		
	Dh turbina	510.3	kJ/kg	
	h out turbina	2757.3	kJ/kg	
	h liq sat @ Tcond	546.3	kJ/kg	*
	Dh cond	2211.0	kJ/kg	*
	Qcond,cog	10297.5	kW	*
	eta mecc-el turbina	0.96		
	P turbina	2281.6	kW	
	Dp pompa	47.3	bar	
	densità acqua	798.4	kg/m3	
	Dhis pompa	5.924	kJ/kg	
	Dh pompa	7.90	kJ/kg	
	Pel pompa	39.99	kW	
c)	Qfrigo	7208.2	kW	
d)	h in eco	554.2	kJ/kg	
	hvap sat @ peva	2800.9	kJ/kg	*
	Qsh	2173.9	kW	*
	Qeva	8204.3	kW	
	Qeco	2259.2	kW	
	Tgas camino	219.1	°C =	492.22 K
	T0	15	°C =	288.15 K

Tml camino-ambiente	381.1 K
Eta Lorenz	0.244
Qcamino	11224.1 kW
L rev gas camino	2738.1 kW

e)

Tgas uscita sh	410.28 °C
DT1 sh	30.00 K
DT2 sh	159.92 K
LMTD sh	77.63 K
A sh	70.0 m ²
DT1 eva	159.92 K
DT2 eva	10.00 K
LMTD eva	54.08 K
A eva	379.3 m ²

f)

DT1	40.00 K
DT2	10.00 K
LMTD cond	21.64 K
A cond	119.0 m ²

g)

UA = cost => LMTD' = 0.5*LMTD_design =	10.82 K
LMTD'=(DT1'-DT2')/ln(DT1'/DT2')	
DT1'-DT2' = DTacqua cog =	30.00 K
ln(DT1'/DT2') =	2.773
DT1'/DT2' =	16.00
Tcond' =	122.0 °C