

Esercizio 1 lastra g' parziale

A	m ²	1	q'	W/m ³	100000	Profilo T		
con q'		0.04	massa	kg	80			
senza q'		0.02	Q/A	W/m ²	4000	Tambiente	20	20
q'	W/kg	50	h		10	Tsup est	420	420
ro		2000	deltaT_ari	°C=K	400	T cambio	580	580
lambda		0.5	deltaTlin		160	Tadiabatic	580	740
Cp		1000	delta_T parabolico		160			

Esercizio 2 Aletta,

h	15.00	Area	0.000102	m	6.82	Tbase	100
Lato	0.02	perim	0.074	1/m	0.147	Tambiente	20
Spessore	0.003			L_inf	0.73	Q'_base	0.122
lambda_al	234			efficacia	106	Q' aletta	13.0

Esercizio 3 Bi<<1, Re-Nu cilindrico, raffreddamento tubo caldo

w m/s	10	Tfilm	121.25	121.25	lambda Al	60
Dest m	0.06	lambda	0.033363		ro Fe	7800
Dint m	0.05	mu	2.08E-05		Cp Al	500
T_iniz	400	ro_aria	0.90			
Tfinale	45	Pr	0.701		L_Biot	0.004583 ok 0.01
Tamb	20	L_Re	0.060		Biot	0.003882
V=	0.000864	Re	25835		tau	352 s
A=	0.1884	Nu	91.4		t_finale s	957 s
		h	50.82		t min	16.0 min

Esercizio 4 Gas Q L deltaU

					q l u	Q L U
Mm	28	1	2	3	Q12=dU12	222696 7500
R	296.9	3	3	2.37	Q23=dH23	-131985 -4445
Cp	1039.3	10	20	20	Q13=Qtot	90712 3055
Cv	742.3	27	327.0	200	L23=Ltot	-37710 -1270
m [kg]	0.034	300	600.0	473	deltaU13	128422 4325

Esercizio 5 ciclo bryton K °C

T1 °C	20	T1 [K]	300	27	eta id	53.0%
P1=4 ass	1	T2id [K]	638	365	l'	287.8
P2=3 ass	14	deltaT12id	337.7		q'	954.7
etaC	80%	deltaT12re	422		eta1	30.1%
etaT	80%	T2re	722	449	etaC	82.1%
Tmax °C	1400	T3	1673	1400	eta2	36.7%
		T4id	787	514		
R kj/kgK	286.7	deltaT34id	885.9			
Cp	1003.4	deltaT34re	709			
x		T4re	964	691		

Esercizio 6 Rankine

			T °C	P kPa	x	h	s
Tmin °C	45	1=LiqSat	45	9.593	0	188.5	0.6387
Pmax bar	160	2	45	16000	nd (<0)	204.5	"
Tmax °C	450	2re				204.5	
etaPpomp:	1	5	450	16000	nd (>1)	3136.375	6.08755
etaTurb	1	6	45	9.593	0.724	1922.2	6.08755
		6re			0.724	1922.2	
		VapSat	45	9.593	1	2583.2	8.1648

	ideale	reale
Qin	2931.90	2931.90
L_nu	1198.12	1198.12
eta1	40.9%	40.9%
etaC	56.0%	56.0%
eta2	73.0%	73.0%

x

Esercizio 7 Moody

V' l/min	66.66667	ro w2/2	2564	deltaP Pa	deltaP Bar	metri	J/kg
V' l/s	1.1	L metri	10	attrito	41030	0.41	4.19
rho kg/m3	1000	z metri	6	altezza Z	58800	0.59	6
m' kg/s	1.1	mi	0.001	totale	99830	1.00	10.19
D m	0.025	ni	0.000001				
A m2	0.000491	Re	56617				
w m/s	2.26	f attrito	0.04				

