

**Esercizio 11** Irraggiamento FV grafico dischi, cilindro

D	0.6		Area	eps	T °C	K
R	0.30	Soffitto	0.28	0.8	210	483
altezza = L	0.3	Lati	0.57	0.6	90	363
L/R	1.00	Pavimento	0.28	0.6	90	363
R/L	1.00					
F_BB	0.38 ok 0.38	F12	Q'			
F_BL	0.62	Q' sup-lato	0.62	270.4		
F_LB	0.31	Q' lato-inf	0.31	0.0		
B=base L=lato		Q' sup-inf	0.38	167.4		

**Esercizio 12**

## tubo isolato

x

			lambda	Ri	deltaT	T °C	T K	
	h int		100000			60	333	
Dint cm	3 r1	0.015	R conv int	0.000106	0.01	59.99	333	
sp mm	5 r2	0.020	60	0.000763	0.05	59.94	333	
sp is cm	2 r3	0.040	0.2	0.552	36.70	23.24	296	
	h est		20	R conv est	0.199	13.24	10.00	283
			R tot	0.752		10	283	
x			Q'	66.5				

**Esercizio 13** Re-Nu piana, Bi>0.1, piastrelle si raffreddano

Dim A cm	20	0.2 m	T_film °C	194	corretta °C	194	466.75 K
Dim B cm	30	0.3 m	lambda_ar	0.038439	errata °C	358	630.5 K
SP, CM	6		mi_aria	0.000025			
L Re-Nu,m	0.3		Pr	0.701			
			Ro_aria	0.757			
T_iniz	700	Re	99674				
T_finale, Sup	45	Nu	180.7				
T_amb	15	h	23.2				
w_aria	11	Bi	0.993				
lambda ceramic	1.4	lambda1	0.857834		(coseno= 0.654		
ro ceramica	2600	A1	1.11847				
Cp	800	teta	0.044				
alfa	6.73E-07	Fo	3.8				
facce	1	tempo s	20465				
Lc per Bi	0.06	tempo min	341				
		tempo h	5.68				

**Esercizio 14** Q, L, politropica

Mm	29		1	2	3	1
R	286.69	V	1	1	15%	1.00
Cp	1003.41	P bar	1.01	1.626	23.15	1.01
Cv	716.72	rho	1.17	1.17	7.83	1.17
		T °C	27	210	759	27.00
		T K	300	483	1032	300.00
v	0.851553	n	isoV		1.4	1.651
m [kg]	1.0000	deltaU J	131160.5		393193.7	-524354
		Qin [J]	131160.5		0.0	-146023
x		Lin [J]			393193.7	-378331

**Esercizio 15** Rankine

			T °C	P kPa	x	h	s
Tmin °C	40	1=LiqSat	40	7.384	0	167.6	0.5725
Tmax °C	400	2	40	11999	nd (<0)	<b>179.6</b>	"
Pmax bar	120	2re				179.6	
etaPpompa	1	5	400	11999	nd (>1)	3051.323	6.074769
etaTurb	1	6	40	7.384	<b>0.716</b>	<b>1890.8</b>	6.074769
		6re			<b>0.716</b>	1890.8	
		VapSat	40	7.384	1	2574.3	8.257

	ideale	reale
Qin	2871.74	2871.74
L_nu	1148.47	1148.47
<b>eta1</b>	<b>40.0%</b>	<b>40.0%</b>
etaC	53.5%	53.5%
<b>eta2</b>	<b>74.8%</b>	<b>74.8%</b>

**Esercizio 16** Ugello

eta	74%		1	2id	2re		
P2 ass		T K	357	292.9	321.9	293	357
D mm	20	P	2	1.00	1.00		
A m2	0.000314	rho	1.95	1.19	<b>1.08</b>		
R	286.7	w m/s	0	358.8	<b>265.5</b>		
Cp	1003.4	delta_s gas		J/Kg/K	94.8		
<b>m'</b>	<b>0.090</b>	deltaS'gas		W/K	<b>8.6</b>		
x							

**Esercizio 17** 26-1 pompa calore

					K	°C	
<b>COPid</b>	<b>6.83</b>	Lin	<b>1.13</b>	T_uff	21	Tsup	321 48
eta	52%	Q'sup kW	4	T_esterno	8	Tinf	274 1
<b>COPre</b>	<b>3.55</b>	Q'inf kW	2.9	deltaT_ev	7	deltaT	47
x				deltaT_cor	27		

**Esercizio 18** aria umida condensa

punto	m kg	T °C	UR	Psat	Pvap	x	h
1		30	72%	4231.9	3046.96	0.0193	79.44
2		8	100%	1072.1	1072.12	0.0067	24.77
			m'aria	2	delta	0.0126	54.7
x			<b>m'cond</b>	<b>0.025</b>	<b>Q'</b>		<b>109.3</b>

**Esercizio 19** 30-1 Moody

V' l/min	30	m' kg/s	0.50	w m/s	1.59	Re	53078.56
D cm	2	D m	0.02	mi	0.0006	f attrito	0.03
rho	1000	A	0.000314	ni	0.000001	L metri	36
	deltaP Pa	deltaP Bar	metri	J/kg		ro w2/2	1268
attrito	68461	0.7	6.99	68		k gomito	0.8
altezza Z	352800	3.5	36	353			
<b>totale</b>	<b>421261</b>	<b>4.2</b>	<b>42.99</b>	<b>421</b>	<b>potenza L'</b>	<b>211</b>	

1 gomito	1014	0.010	0.10	1.014	N	20.77
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