Appendix B: Problem specifications

Table B.1: Design specifications for the Stirling engine

Parameter	***Variable***	***Value***	***Units***
Power piston			
Crank length	A_0A	0.025	[m]
Connecting rod length	AB	0.075	[m]
Distance from pin to piston top	BP_T	0.005	[m]
Displacer			
Crank length	A_0C	0.02	[m]
Connecting rod length	CD	0.14	[m]
Displacer volume	$\forall_{disp}$	4e-5	[m^3]
Cylinder bore (diameter)	ϕ	0.050	[m]
Phase shift	ψ	$\pi/2$	[rad]
Compression ratio	CR	1.7	
High temperature	T_H	900	[K]
Low temperature	T_L	300	[K]
Gas pressure at BDC	P_{min}	500	[kPa] abs
Atmospheric pressure	P_{ATM}	101.3	[kPa] abs
Regenerator dead volume	$\forall_{regen}$	2e-5	[m^3]
Working fluid		air	
Flywheel			
Width	w	0.025	[m]
Diameter	D	???	[m]
Rim thickness	t	0.050	[m]
Material		steel	
Coefficient of fluctuation	C_f	0.003	
Average rotational velocity	Ω	650	[rpm]