

Air To Air Intercooler Design				
Engine Displacement :	3.00	L		
Engine Speed :	5000	rpm		
Atmospheric Air Pressure :	101.325	kPa	14.696	psi
Constant Pressure Specific Heat of Air :	1.0035	kJ/(kg.K)		
Maximum Boost Pressure :	12.0	psi	184.06	kPa
Turbo/Supercharger Efficiency :	90	%		
Intake Air Temperature @ Air Cleaner :	25.0	°C	298.15	°K
Desired Intake Air Temperature @ Intercooler Outlet :	35.0	°C	308.15	°K
Intake Air Temperature @ Intercooler Inlet :	89.4	°C	362.53	°K
Intake Air Flowrate :	11.5	m ³ /min	0.19146	m ³ /sec
Intake Air Density :	0.84450	m ³ /kg		
Intake Air Mass Flowrate :	0.22672	kg/sec		
Intake Air Enthalpy @ Intercooler Inlet :	363.802	kJ/kg		
Intake Air Enthalpy @ Intercooler Outlet :	309.229	kJ/kg		
Required Heat Transfer to Ambient Airflow :	12.373	kW	16.585	hp
Ambient Air Temperature @ Aftercooler Inlet :	25.0	°C	298.15	°K
Minimum Ambient Air Velocity for 100% Duty :	50.0	km/hr	13.89	m/sec
Core Flow Efficiency @ Minimum Ambient Air Velocity :	90	%		
Aftercooler Core Height :	300	mm		
Aftercooler Core Width :	540	mm		
Aftercooler Core Area :	0.16	m ²		
Ambient Air Flowrate :	2.0	m ³ /sec	4290.74	cfm
Ambient Air Density :	0.84450	m ³ /kg		
Ambient Air Mass Flowrate :	2.39787	kg/sec		
Ambient Air Enthalpy @ Aftercooler Inlet :	299.194	kJ/kg		
Ambient Air Enthalpy @ Aftercooler Exit :	304.353	kJ/kg		
Ambient Air Temperature @ Aftercooler Exit :	30.0	°C		