



Subaru STI Liquid cool project

Designed by Robert Rojas



Purpose is to eliminate heat soak when vehicle is at rest.  
To deliver a constant feed of coolant below ambient temp.  
To lower Inter-cooler temp for a more dense charge.  
To improve the life of the motor by reducing combustion temps.  
Improve performance with better AFR .  
Build within budget of any intercooler setup on the market.



**Model:** 2015 Subaru WRX

**Horsepower:** 305 hp

**Curb weight:** 3,386 lbs

**Engine:** 2.5 L 4-cylinder

**Tire size:** P245/40R18

**MPG:** 17 city / 23 highway

**Wheel size:** 18" diameter, 8.5" width

**Transmission:** 6-speed manual



# Main components

Liquid chiller spec DV1910E-P-12V

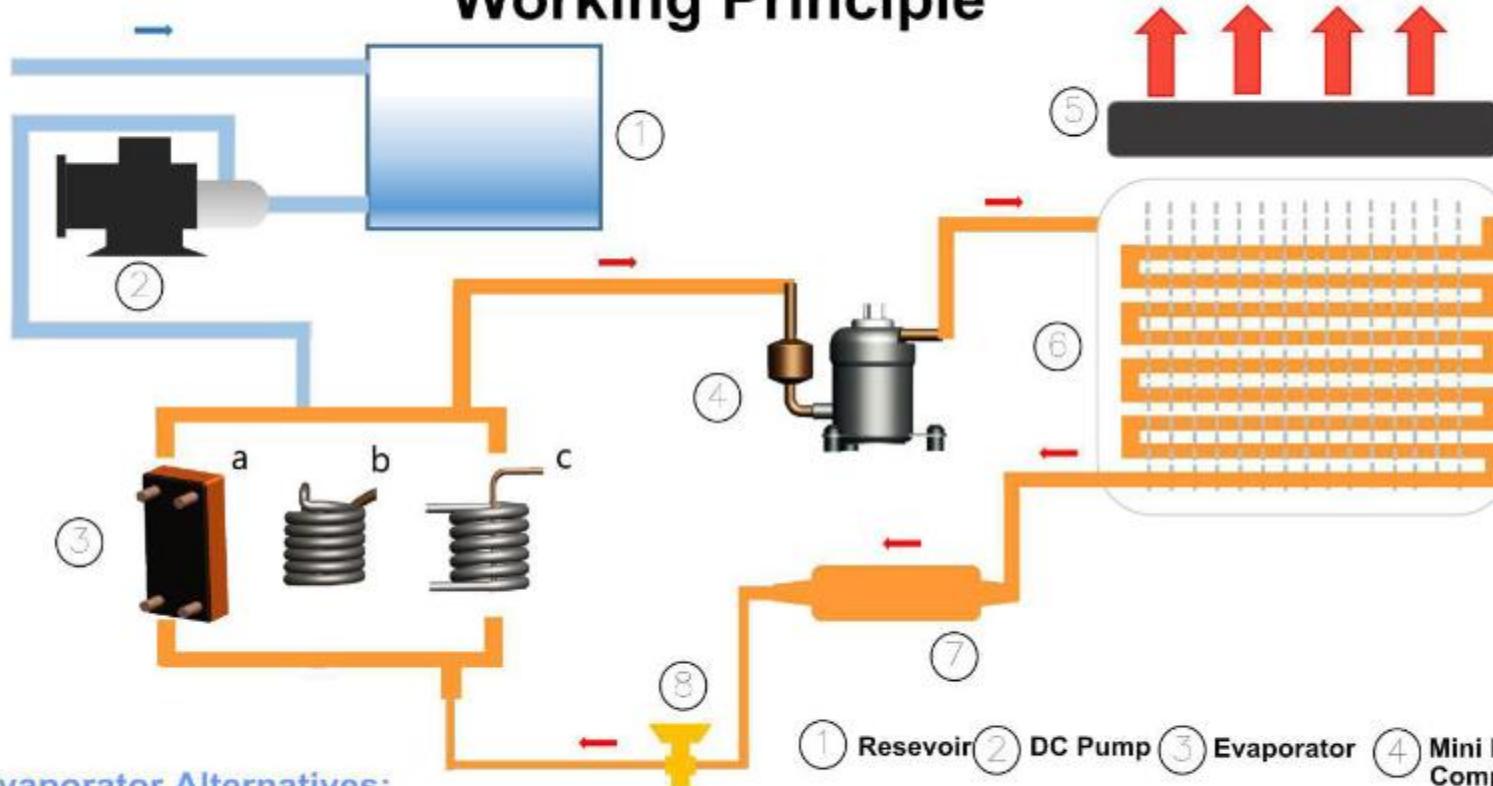
1-Specification:ModelNameDV1910E-P  
DCCompressorModelQX1901VDL  
RefrigerantR134a, RatedVoltage12V  
VoltageRange9V-16VStartup, Voltage12V

TemperatureRange  
-16C~30C/ 3.2\* Freezin to  
86\* F,

MaxCurrent10ACoolingCapacity100W~360WCapillaryTube  
Φ2\*0.8mWorkCurrentRange1~8ANoise40dB(A)Vibration≤0  
.65m/s<sup>2</sup>N.W6.61lbs/3.0KgsMotorSpeed2000~6000rpmDriver  
BoardVariableFrequencyController



## Working Principle



## Coolant tank for Liquide HX



Tank is still a concept, additional inlets and outlets may need to be fabricated for direct fluid or coil application.

Water-Meth solution will kept to close to freezing.

Return from intercooler connections will be additional. Pump will be wired up to accessory with on/manual switch at driver.

System pressure will be at 45-65 psi to maintain over system temp to inlet –discharge from the intercooler.

# Specs on tank

## **Aluminum Ice Box + Water Pump For Turbo or Supercharger Heat Exchange System**

This Listing includes these Following Parts: 2.4 Gallon Ice Box + Water Pump

### **Ice Box:**

Size: 14"x8"x5", 2.4 Gallon.  
Water Inlet Outlet are 3/4" OD. Rolled or Beaded Ends to Maximize Sealing.  
Big Copper Drain Plug.  
3" Opening Stainless Steel Flush Mount Cap for Fast Filling.  
Flush Bottom Mounting Brackets for Easy Install.

### **Water Pump:**

Water Inlet Outlet are 3/4" OD.  
Volume: 30L/Min (8 Gal/Min)  
9500rpm Brushless Motor  
Voltage: 12V DC

# Intercooler Water to Air

## Options

Overall Size:

16"x11"x4.5"

- Core Size:

11"x9"x4.5"

- 3" Air Inlet Outlet

- NPT 1/2 Water Inlet  
Outlet

- 4.5" Thick



- Overall Size:

12"x11"x4.5"

- Core Size: 11"x6"x4.5"

- 3" Air Inlet Outlet

- NPT 1/2 Water Inlet  
Outlet

- 4.5" Thick



**Supports 1,000HP!**

# How it Installed



Similar example of  
mounting

# Trunk mounted hardware



Concepts



Other hardware need for connections and hose will be selected during the build.

This is still a concept but it will work. With a larger radiater, coolant delete mod, the car will run a bit cooler.

Provision to integrate meth inject can be added to the intercooler and using the existing reservoir can be added.