# IIIRace Louvers

Professional R&D - Wind Tunnel Tested - Track Proven

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Zero Speed Cooling - Track Cars

#### Introduction

Welcome to Race Louvers. What is zero speed cooling? It is a feature we built into all of our Race Louvers where the louver is as open as possible with the least resistance to vertical airflow without affecting our main cooling and downforce at track speeds. This nets maximum cooling at a stand still.

Most people when considering hood vents or heat extractor hoods only think of cooling gains at speed whether on the highway or on the track but dont consider how they cool at a stop. We know from wind tunnel testing not all hood vents and extractors are created equal. This test is to show the cooling rate of various hood vent designs once the car is stopped and shut off. We know oem hoods without venting traps the hot air inside the engine bay and causes heat soak as well as long cool down times, we know adding hood vents will help, but how much? An even better question is why bother no one operates thier car at a stand still. Well consider these situations. Your endurance racing and have frequent pit stops, wouldnt you like the car to cool off as much as possible while your sitting there? You are an autocrosser and regularly sit in staging heating up while waiting for your run. You have an offroad truck and running trails or crawling rocks at 5mph. More common is on track red flags where you have to stop immediately or impound procedures for racers, both of these can heat soak a car and cause hot start issues. So while we agree cooling at track speed is the main priority, cooling a low or no speed is a benefit.

#### The Plan



1. Take all of Our wind tunnel test vents and extractors

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2. Use this temporary hood



3. Put them on this mustang track car

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4. Then document radiator coolant temps, starter air temps and upper firewall air temps after shut down

# Procedure

- 1. Install test vent
- 2. Operate car at 1500 rpm high idle to heat up
- 3. Shut down car once radiator coolant temps reach 200F
- 4. Wait 15 minutes
- 5. Document radiator coolant, starter air and upper firewall air temps to establish cooling rate
- 6. Repeat for other test vents

\* Note, radiator electric fan assembly was unplugged so as to not affect temperatures

Wind Tunnel Vent Top Views



# Zero Speed Cooling Data



Zero Speed Cooling - Air Temp at Starter





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#### **Previous Wind Tunnel Cooling Data**

85 mph

# **Data Overview**

Zero speed cooling data above shows most vent designs on the market, stamped louvers, recessed louvers and raised louvers are fairly restrictive to vertical heat rise while Race Louvers have the least restriction. This nets the best cooling at a stand still.

Looking at previous wind tunnel cooling data above most vent designs on the market, stamped louvers, recessed louvers and raised louvers dont perform well at speed, except Race Louvers, having more than double the cooling. This nets the best cooling at track speeds.

Race Louvers puts the two together combining the best cooling at speed with the best cooling at zero speed.

# Conclusion

Benefits of Race Louvers over others:

- The best cooling at speed, idling or parked
- Cooler engine bay temperatures
- Less heat soak
- Less chance of hot start issues

There you have it, as we've seen before not all hood vents are created equal. Race Louvers hybrid extractors combine a few elements of different vent designs to maximize cooling at speed as well as cooling at low or no speed. So not only do our extractors provide double the cooling and four times the downforce over other vent designs but have twice the cooling rate at a stand still. Our zero speed cooling feature has been built into all of our Race Louvers from day one where the louver is as open as possible with the least resistance to vertical airflow without affecting our main cooling and downforce at track speeds. While this aspect is not a huge deal, it does help in the cooling department.

Zero Speed Cooling Video: <u>https://www.youtube.com/watch?v=Qh\_3yfsIrLo</u>

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