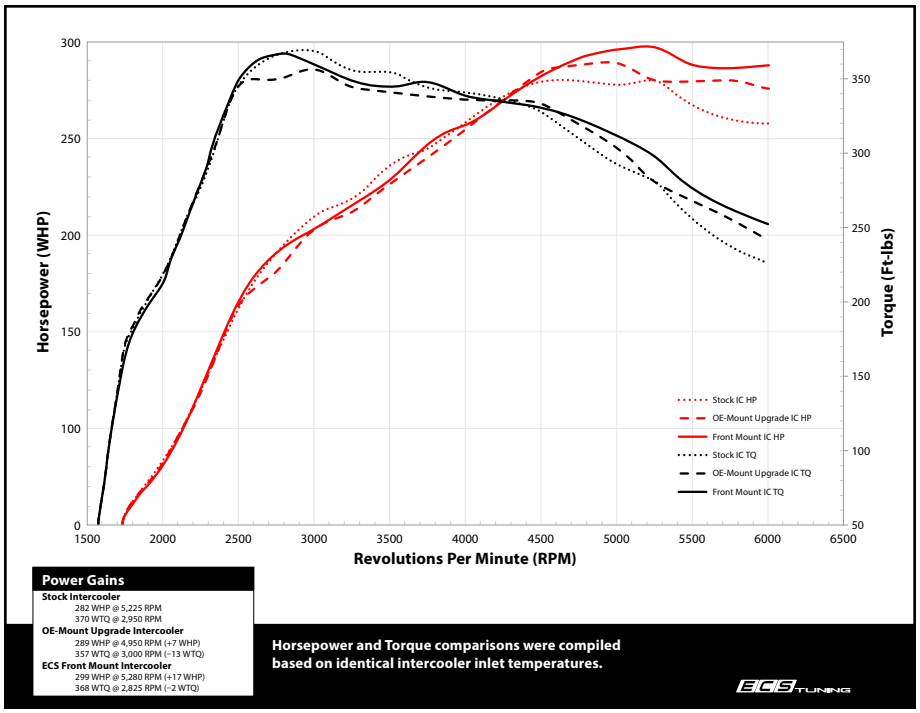
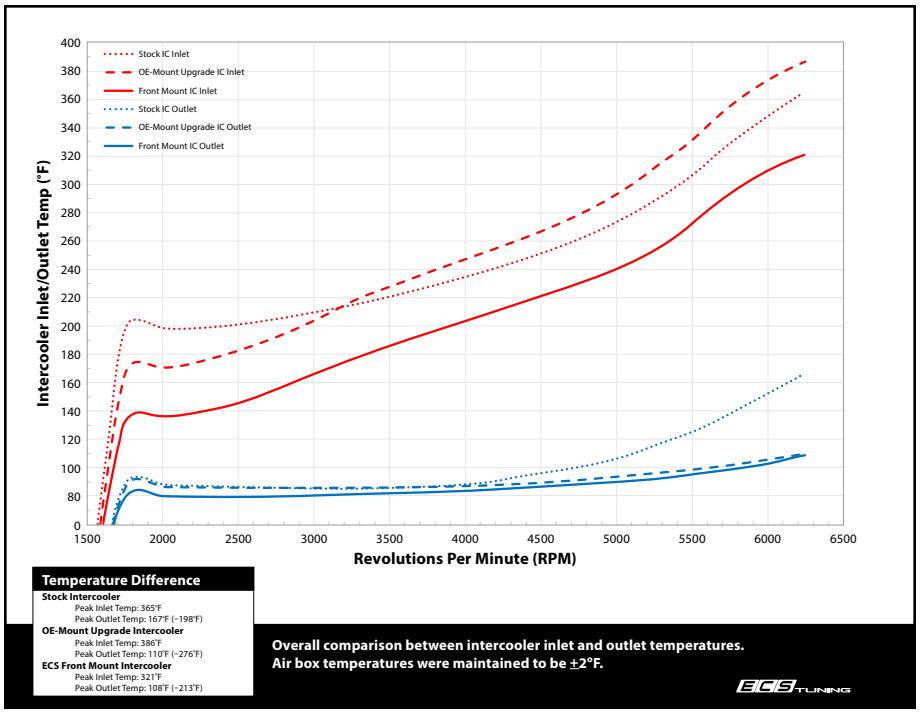
# MK7 FRONT MOUNT INTERCOOLER TESTING RESULTS




## Horsepower & Torque

The graph above shows the horsepower and torque curves for all three intercooler types. We expected to see gains in both power and torque, and we weren't disappointed! Here were the results:

| OE-Mount Upgrade IC: | Front Mount IC: |
|---|---|
| 289 WHP @ 4,950 RPM **(+7 WHP)** | 299 WHP @ 5,280 RPM **(+17 WHP)** |
| 357 WTQ @ 3,000 RPM **(−13 WTQ)** | 368 WTQ @ 2,825 RPM **(−2 WTQ)** |

You may notice the slight loss of peak torque, don't let that scare you. What we see in return is significant torque gains over the stock intercooler above 4,500 RPM, and we can also see torque gains over the OE upgrade intercooler above 2,500 RPM! The increased torque in these RPM ranges will translate to better throttle response, more passing power, and more fun for you!

## Intercooler Inlet vs Outlet Temperature

This graph tracks the temperature of air as it enters and exits the intercooler. Outlet temperatures will obviously be lower than inlet temperatures, but we're looking at both numbers to see how much heat the intercooler is removing from the inlet air. Cooler air is denser air, and denser air leads to more power.

| Stock IC: | OE-Mount Upgrade IC: | Front Mount IC: |
|---|---|---|
| −198°F max decrease | −276°F max decrease | −213°F max decrease |

The OE-mount upgrade intercooler came out on top in this test, likely due to the larger surface area it has to offer for heat transfer. However, this style of intercooler is more expensive and significantly more difficult to install. Our front mount intercooler still boasts serious performance without the added cost or complexity of the OE-mount upgrade intercooler.

We performed extensive testing on our front mount intercooler and compared it to the stock unit, as well as an upgraded OE-mount intercooler. All of these tests were performed on the same vehicle under the same conditions.

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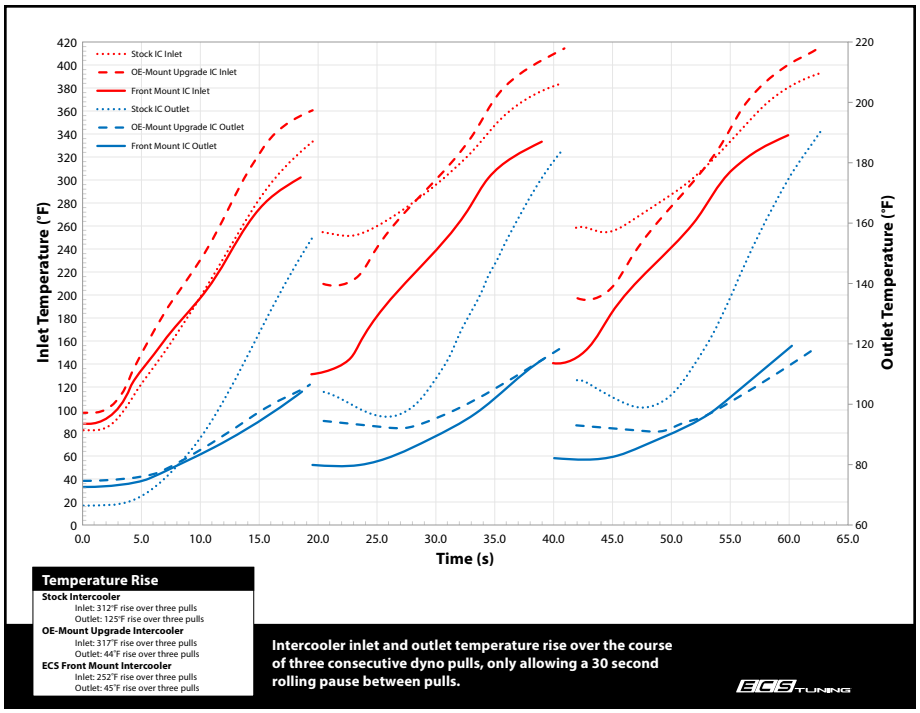


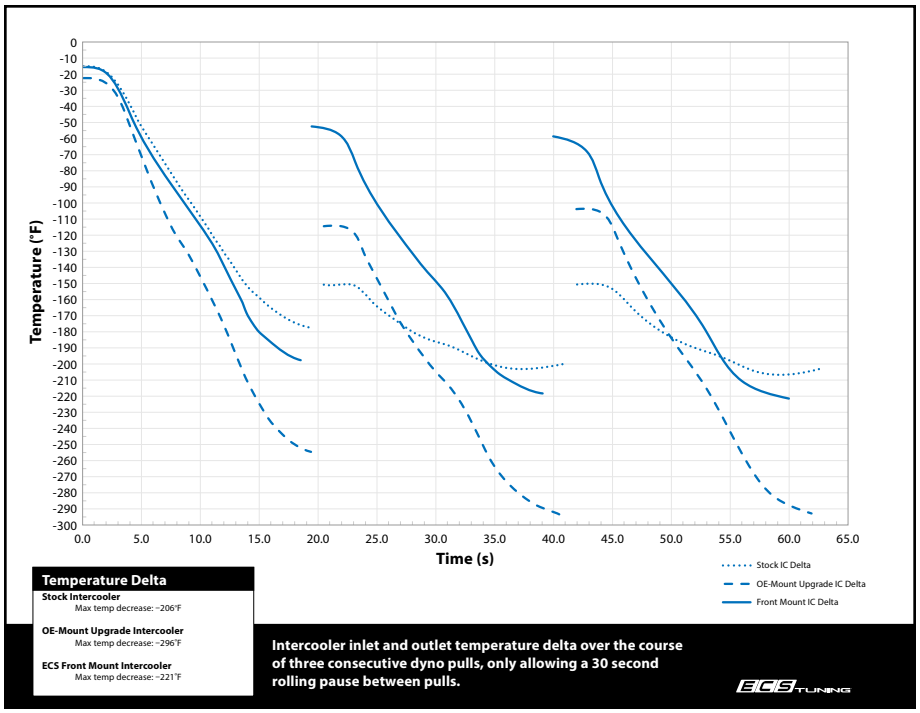


## Temperature Rise

This graph tracks air temps at the intercooler inlet and outlet during three consecutive dyno pulls. We're looking for signs of "heat soak", as the engine builds up heat the air temps can rise. Since the intercooler is trying to remove heat from the air before it reaches the engine, we want to see those temps rise as little as possible for the best possible performance. Here were the results:

| **Stock IC:** | **OE-Mount Upgrade IC:** | **Front Mount IC:** |
|---|---|---|
| **Inlet:** 312°F temp rise | **Inlet:** 317°F temp rise | **Inlet:** 252°F temp rise |
| **Outlet:** 125°F temp rise | **Outlet:** 44°F temp rise | **Outlet:** 45°F temp rise |

Our front mount intercooler is the clear winner here with an inlet temp rise of 252°F, and an outlet temp rise of 45°F. The stock and OE-mount upgrade intercoolers are sandwiched between the radiator and condenser, and since they aren't exposed to clean, cool air they simply aren't able to match the performance of our front mount intercooler.

## Temperature Delta

In this test we're looking at the difference (AKA: "delta") between the intercooler inlet and outlet temps during three consecutive dyno pulls. Think of this as an intercooler stress test, specifically testing its ability to remove heat from the air during consecutive dyno pulls. Here were the results:

| **Stock IC:** | **OE-Mount Upgrade IC:** | **Front Mount IC:** |
|---|---|---|
| −206°F max decrease | −296°F max decrease | −221°F max decrease |

The OE-mount upgrade intercooler came out on top with a delta of −296°F, but our front mount intercooler still boasts some serious "bang for your buck" performance without the added cost or complexity of the OE-mount upgrade intercooler.

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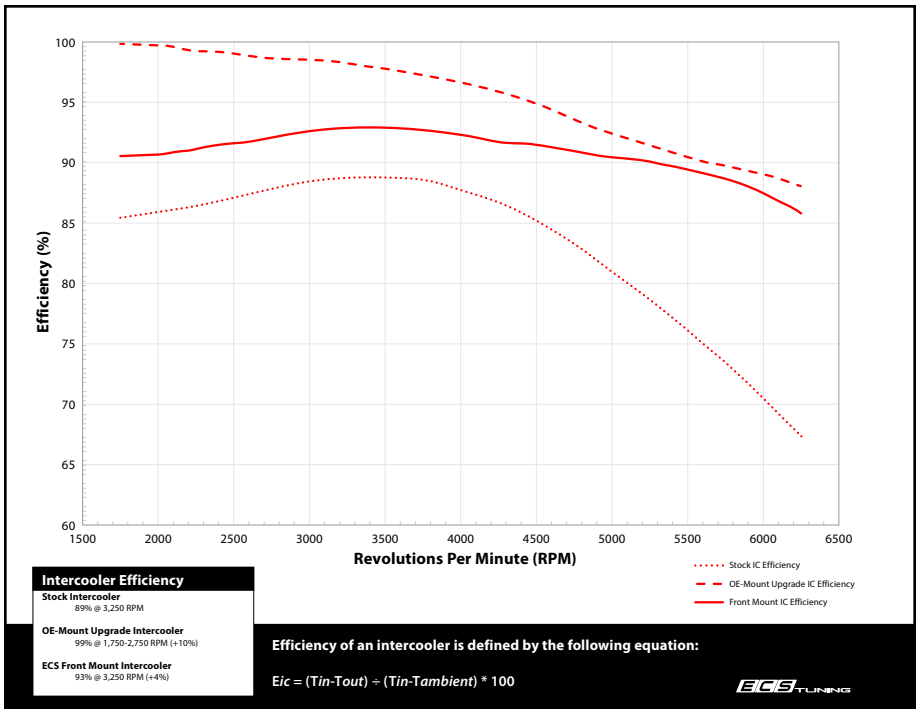
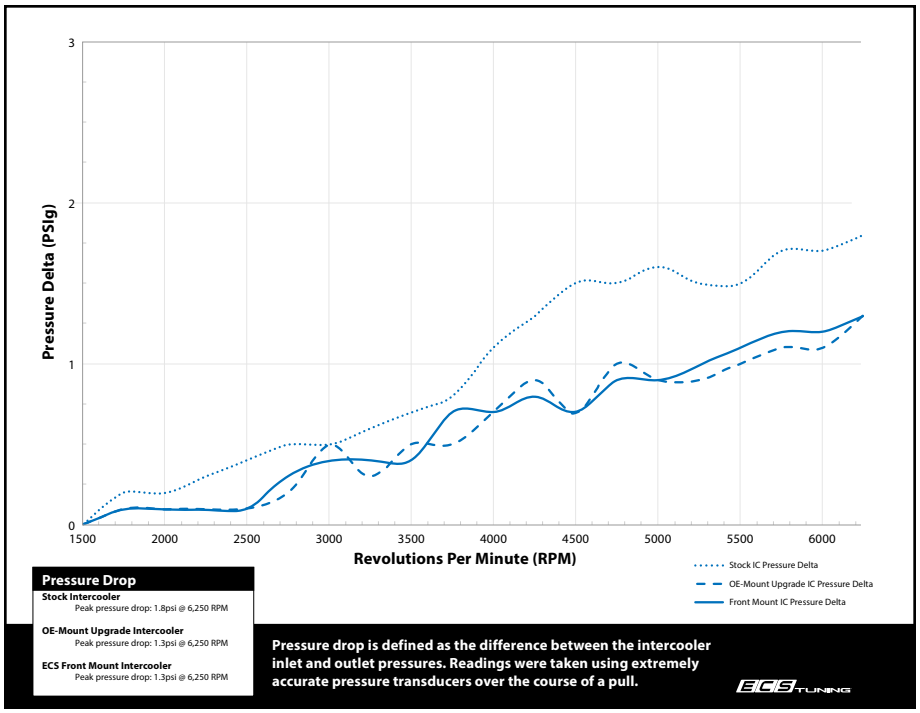



## Intercooler Efficiency

This test measures the efficiency of an intercooler. It does this by tracking the temperatures of the air coming in and out of the intercooler, then those numbers are entered into the formula shown underneath the graph. Basically, we're looking at how effective the intercooler is at reducing the inlet air temp. Here were the results:

| Stock IC: | OE-Mount Upgrade IC: | Front Mount IC: |
|---|---|---|
| 89% @ 3,250 RPM | 99% @ 3,250 RPM | 93% @ 3,250 RPM |

The OE-mount upgrade intercooler wins this test with an efficiency rating of 99%, but our front mount intercooler continues to perform very well at 93% compared to the 89% rating on the stock intercooler. A 4% boost in efficiency at a lower price point makes our front mount a great upgrade for those who aren't looking to install the more expensive OE-mount upgrade intercooler.




## Pressure Drop

This final test measures the air pressure drop between the intercooler inlet and outlet. We took our readings with extremely accurate pressure transducers which were drilled and tapped into each end of the intercooler. We want to see low numbers in this test, this means that the intercooler is operating efficiently and is not restricting air flow. Here were the results:

| Stock IC: | OE-Mount Upgrade IC: | Front Mount IC: |
|---|---|---|
| 1.8psi peak pressure drop @ 6,250 RPM | 1.3psi peak pressure drop @ 6,250 RPM | 1.3psi peak pressure drop @ 6,250 RPM |

If you're only looking at the numbers it might appear that the OE-mount upgrade and front mount intercoolers tied here, but if you look closely at the graph you can see how much smoother the front mount intercooler line is. The peaks and dips in the OE-mount upgrade are likely caused by air turbulence, which makes the front mount the best all-around performer here!