## FVD Brombacher's 2012 + Boxster / S (981) mufflers depth...

THE MUFFLER section of our exhaust system includes thermal insulation shields on the piping to keep the suspension components as cool as possible. Our thermal insulation consists of bonded nonwoven silicate fibers covered with a special flexible stainless steel foil that can withstand up to 2,012 degrees Fahrenheit (1,100 degrees Celsius). The foil is then welded on to the piping ensuring long life and trouble free operation. The muffler incorporates an X pipe design to dampen and eliminate unwanted frequencies otherwise known as "drone" and gives the system the added benefit of increased torque in the mid-range. The actual muffler is vastly different than the common baffle plated muffles stuffed with packing material that are common in the aftermarket. Ours are uniquely made with double perforated sound absorption tubes. The acoustic silencer absorption tubes are made in a trapezoidal pattern and are perforated with varying diameters, which isolate and dampen unwanted frequencies. Perforated tubes at higher gas velocities, present much less flow restriction than baffle plates and consequently translates into larger horsepower gains at higher RPMs. Also they produce the aggressive gurgling sound and contribute to the low, deep tones that you hear.

THE EXHAUST TIPS are a dual 3.5" round design and are double walled to dissipate heat, which means that they won't tarnish as quickly as single walled tips. The design fits the factory cut outs in the bumper perfectly and is mounted via the "Aero-Quip" sleeve style connections so they can be perfectly adjusted and centered.

All of the points made above are far more time consuming to manufacture and add expense to our products. But we choose these methods to ensure maximum horsepower gains throughout a broad power band; all while maintaining reasonable sound levels with an exotic exhaust note that is purely Porsche<sup>®</sup>.

## TÜV Approval and why the end user benefits in the long run...

Like all European Vehicles, FVD parts are TÜV approved. What is TÜV approval you ask? Basically, German registered road vehicles may not be operated on public roads without a certificate from the TÜV. Also, all modifications must be approved, from installing tires of a different size to materials used in nuts and bolts. <u>TÜV safety guidelines are among the strictest in the world</u>, and getting a road permit for thoroughly customized vehicles borders on the impossible.

FVD parts must pass these criteria in order to obtain the TÜV stamp of approval:

**Corrosion Test** – Exterior metal parts (ie exhaust, brakes, rims, etc.) must undergo a HCL (Hydrochloric Acid) bath, which speeds up the corrosion process. This ensures long lasting, highly durable parts which benefit the end consumer.

**Extreme Temperature Test** – Items are put through –40 degrees Celsius to + 85 degrees Celsius sudden temperature change. This test ensures that material expansion and contraction does not cause cracking or material inconsistency.

**Material Analysis** – Chemical and Microscopic material analysis is done to determine the correct percentages of Iron, Zinc and many other elements. This also ensures material consistency and longevity.

**Exhaust Temperature Test** – Exhaust items are also put through a series of extremely high temperature tests in order to assure the consumer that parts can withstand cracking and splitting. Test temperatures exceed 1,400 degrees Celsius!! For reference normal exhaust gas temperatures are only 800 degrees Celsius.

FVD Brombacher exhaust products also carry a 2 year warranty. But rest assured, since our parts have to undergone the above testing they will last many, many years and many owners as well.