

## BREAKTHROUGH TO LIGHT: VW EA211 I4 ENGINE AIR INTAKE MANIFOLD

SOLUTION STORY: UNDER-THE-HOOD

### HIGHLIGHTS

- Molded with SABIC® PP compound G3135X
- First PPC-based air intake manifold on vehicles in China
- 15-20% molded part weight reduction
- 25-35% cost reduction
- Improved tensile strength and flexural modulus
- Excellent weld strength
- Improved part acoustics
- 20% improved impact resistance
- 2016 SPE TPO Conference Innovation Award winner, Underhood category





## FULL STORY

Automakers and their suppliers are focused on reducing weight across all areas of the vehicle to improve fuel efficiency and minimize emissions. This focus extends to under-the-hood parts like air intake manifolds.

## SEEKING AND FINDING LIGHTER

For its new-generation EA211 engine family, Volkswagen sought to design a lighter part at a competitive cost with more reliable mechanical performance.

Approached for a solution, SABIC developed a new polypropylene (PP) material to meet the defined requirements.

The material, SABIC® PP compound 3135X, has a lower density than polyamide 66 glass-filled resin, which is the material typically used for this under-the-hood component.

The SABIC® PP compound features a unique technology involving proprietary glass fibers and special sizing, which helps to meet performance requirements.

By moving to the PP compound solution from SABIC, a part mass reduction of 15-20% vs. conventional PA66-based solutions was achieved – supporting fuel efficiency and emission reduction goals.

This component, developed by Tier 1 supplier Hua Tao Ltd., and produced globally, represents the first air intake manifold launched in China using 35 percent GR PP to replace PA66.

## COMPETITIVE COST

This globally-available PP material from SABIC can deliver improved performance at a cost that is 25-30% less than typical PA66 grades.

## ADDITIONAL ADVANTAGES

This strategy also delivered important performance advantages over PA66.

This includes better weld strength and burst pressure performance; higher flow for improved throughput; greater energy savings resulting from molding at lower temperatures; less sensitivity to moisture; and superior part acoustics.

## CONTACT US

Learn more about SABIC solutions for powertrain and under-the-hood components. Email us at [automotivesolutions@sabic.com](mailto:automotivesolutions@sabic.com).