

# Intercooler air duct

Jectbonding is a process developed by Röchling Automotive, which combines blow molding and injection molding in a single process. It is being used for the production of the intercooler air duct for the VW 2L TDI 125kw vehicles.

In order to substitute aluminum or steel with plastic, Ticona and Röchling Automotive together developed a grade of linear PPS polymer for blow molding. The main challenge for this application was to combine a material that is very difficult to process - PPS - with a highly integrated and complex blow molding method. The key objective was to develop a PPS material with high melt strength, guaranteeing sufficient stability of the parison during the blow molding process. This was achieved by developing a unique high-viscosity linear structure PPS material.

As in a regular blow molding process, the parison is extruded into the open mould. When it closes, and while the compressed air is applied, a secondary unit injects the melt into an auxiliary cavity. As both parts are combined at melt temperature, the result is very good chemical bond and clean joint. The superior benefits are chemical bonding multi-components with clean joint, hence unlike in conventional welding techniques, production variances such as tolerances of the welding process are eliminated. The Jectbonding process improves coupling strength significantly, by about 20%, compared to the conventional welding process.

This blow molded intercooler air duct has 30% less weight and 25% lower cost compared to aluminum air ducts, without sacrificing performance at 230°C and 2.8 bar work load.