

## CASE STUDY



**Project Description:** Reduction transmission oil temperature – Formulavee, Dutchvee Racing Wormerveer

Parties & Individuals:	Dutchvee Racing Wormerveer, Bart Kuipers, Track Engineer BLP International Hillegom, Rob van Hoorn, Project manager
Period:	June 2011 – Present
Situation:	The transmission of a Formula Vee is the same as in the VW Beetle 1300. The engine is significantly tuned and the standard rpm limit increased to 6,400 rpm. As a result the transmission is having to work much harder. With ambient temperatures exceeding 25 °C the transmission fluid temperatures rise to 110 °C. This causes power loss, reduced protection and increased wear.
Products:	Archoil AR9100 Nanoborate Oil treatment (friction modifier).
Action:	0.3 litres of Archoil AR9100 was added to the oil after an oil change with the 2.75 litres of OMAN synthogear transmission fluid. The AR9100 generates a chemical bond with metal surfaces. This provides tremendous wear resistance with a friction coefficient of a 0.0375% (normal oil 0.05%) and prevents excess wear, pitting etc.
Result:	There was a noticeably reduced noise. The working temperature of the engine dropped from >105 ° C to below 95 ° C. RPM at the top speed increased from 6,400 rpm to >6.600 rpm. Overall fuel consumption decreased. Regular sampling shows that the PPM and TAN values reduced. This particular car became the overall Historic Formula Vee European champion in 2011 and 2012.