

 CASE STORY /

## EXPANITE SUPPORTING RENNTEAM UNI STUTTGART.

*Expanite, the surface hardening specialist, has consulted and advised the students at the RennTeam Uni Stuttgart in identifying and solving some of their challenges with wear on the titanium parts in their racing car.*

The Rennteam Uni Stuttgart takes part in the Formula Student racing series, a competition for young engineers across Europe, as well as being involved in other international competitions. Formula Student is an international design competition for students in which teams from around the world construct a single-seated formula vehicle and produce a ready-to-drive prototype, assuming a fictitious design assignment.

The young constructors of the Rennteam Uni Stuttgart are constantly striving to optimize the construction process including the use of materials and spend almost all their time in constructing and testing the cars to prepare for competitions.

### Challenging the weight

To increase the performance including lowering the weight of the race car, the students changed some of the parts to titanium but were faced with problems related to wear parts due to low surface hardness and they decided to contact Expanite for possible solutions.

### ExpaniteHard-Ti is the solution

The Expanite material experts proposed to surface harden the critical titanium parts including parts of the power train, sitting between the differential and the drive shaft with the ExpaniteHard-Ti process. The Expanite hardening makes the use of light-weight titanium parts possible therefore resulting in increased efficiency and significant weight reduction. ExpaniteHard-Ti is a gas-based interstitial hardening process leaving no coating on the surface and thus nothing that can spall off. The actual hardening zone can be tailored to have a case depth of 10-50µm and surfaces can be post-polished to mirror finish. By applying the ExpaniteHard-Ti process, surface hardness can be increased 8-10 times to approx. 1000HV.

"We are thrilled and appreciative about the support we have received by the Expanite expert team. With the guidance and recommendations from Expanite, we are convinced that with the Expanite hardening technology we will experience less or no wear on the titanium parts in our race cars", says Ignacio Gabilondo from the RennTeam

### About Rennteam Uni Stuttgart

The Rennteam Uni Stuttgart was established in 2005. The team is composed of highly motivated students from a broad range of fields taking part in the Formular Student racing series, a competition for young engineers, across Europe, as well as being involved in other international competitions

### About Expanite

*Expanite is based on research since 2000 and was founded in 2010 by leading experts in materials and surface hardening. The company is headquartered in Hillerød near Copenhagen and has treatment centers in the USA, Germany and China. Expanite's solutions are flexible and can be tailored into a customer's own product line as part of a licensing agreement.*

