Hello,

I have a question concerning point T3.3.3. We use 25CD4S (alloyed) steel tubing for the chassis. Point T3.3.3 specifies that “Tests showing adequate strength and elongation at break in the welded condition” are required.

However, according to point T3.2.4, we have to prove « • Yield Strength (Sy) = 180MPa • Ultimate Strength (Su) = 300MPa ». Is the proof of such data in welded condition enough?

In order to do that, we intend to realize a tensile test on two butt welded tubes, therefore accessing to the Yield Strength and Ultimate Strength of welded tubes. The test protocol is detailed underneath and a sketch illustrating it is joined:

* The welding of two butt welded tubes (25CD4S and filling material: 25CD4S), in the same conditions as the chassis will be welded (total length: 350mm)
* Tensile test until breakage
* Determination of Yield and Ultimate Strengths
* Repeat on every diameter/thickness of tube used in the chassis (in order to make sure the welding process doesn’t impact)
* Compare values to the ones of a single tube of 25CD4S of the same length and dimensions

Do you think extensometers are needed on both sides of the weld bead ?

Moreover, we intend to realize a Vickers hardness test, directly on the weld bead, in order to characterize only the strength of the bead.

* Butt welding of two tubes
* Vickers hardness test with 5kg added and a diamond in the form of a square-based pyramid as indenter.
* Determination of Yield Strength of the filling material
* Repeat on every diameter/thickness of tube used in the chassis

Will this be enough to validate our use of 25CD4S for the chassis for the competition? (in addition to all the documentation concerning the material and welding process). Otherwise, what other justification do you expect?

Thank you for your answer

CLAMENS Robin

EPSA