This form must be completed and uploaded to the "My Team" area on the FSG website **no later than the date specified** in the Action Deadlines. A printed copy of this form must be presented together with the vehicle at Technical Inspection.

The Impact Attenuator Data (IAD) and supporting calculations must be submitted electronically in Adobe Acrobat format (*.pdf).

Contact Details

Car number(s) (eg. 42 (FSG))	81
Team name	Ecurie Piston Sport Auto
University name	Ecole Centrale de Lyon

Team Contact Person

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Please NOTE: FS Germany accepts only dynamic test as mentioned in T3.19.1!

The Impact Attenuator Data (IAD) must include the following points:

If the IA (Impact Attenuator) is a "Standard IA Design", the following points must be included:

1. The first **two pages** must always be this FSG Impact Attenuator Data Form, including the completed general and (if applicable) testing summary
2. The report must be written in English and in „engineering style" (e.g. contents, captions, symbols, page numbers)
3. Images and description of the design of the Impact Attenuator (IA), positioning on the Anti-Intrusion Plate (AIP) and IA volume (T3.17.2) above the ground (dimensions in mm)
4. Method for attachment of the IA to the AIP (including data sheets, with referenced strength values highlighted), e.g. if they are bonded together). Note: for mounting the Standard IA to the AIP the adhesive shear strenght must be at least 24 MPa (T3.17.7).
5. Dimensions of the front bulkhead (FBH) (dimensions in mm)
6. Proof of additional diagonal or X-bracing in the FBH or equivalent per T3.17.7 if the FBH width is larger than 400 mm and/or height is larger than 350 mm
7. Design of the AIP (material, thickness and dimension in mm)
8. Method for attachment of the IA assembly to the FBH
9. Current receipt of the material, a packing slip or letter of donation of the IA. Note: these must be actual receipts, no (open) offer or request forms.
10. Pictures (or sketches) and description of the attachment on the car, including front wing attachments and non-crushable object(s) such as sensors, if applicable.

If the IA (Impact Attenuator) is a "Team's Own IA Design", the following additional points must be included:

1. FS Germany accepts only dynamic impact attenuator tests (e.g. sledge test or drop down) with real test data (see T3.19.1), including impact attenuator, anti intrusion plate (AIP), (representative) front bulkhead and, if applicable (per T3.19.4) the front wing, other non-crushable object(s) and/or structurally representative dummies thereof in front of the AIP.
2. Description of the test set up (including sensor, data acquisition system, test fixture)

3. If alternative materials are used for the AIP, equivalency to T3.17.3 must be proven by physical testing as in T3.19.2. Test fixture must be made from the same materials as the intended chassis (consistent with SES).
4. If the test is accomplished at a company or research center, a letter of conformity must be attached.
5. If the test is accomplished at the university, an official of the university (with contact details) must sign a letter of conformity (must be attached to the report).
6. Graphs of average deceleration and peak deceleration over an interval of time, absorbed energy over an interval of time and force over displacement and/or interval of time.
7. Pictures before and after the dynamic impact attenuator test, including proof of measurement of permanent deflection of the AIP (proof, T3.19.2). Note: the FBH cannot be structurally compromised after the test.

General Summary

IA type	Standard honeycomb IA (pre-crushed)
IA description (e.g. form/shape/lay-up)	The IA is the Standard honeycomb IA (pre-crushed) one and has a volume of 100x200x200mm³
IA to AIP attachment	Adhesive
IA to AIP attachment description (e.g. adhesive type/name, method & shear strength)	#insert glue reference see below
AIP thickness & material	1.5mm (or more) steel AIP
AIP description	Square steel plate
AIP to FBH attachment	Welded (e.g. T3.17.3)
AIP to FBH attachment description	The AIP is welded on its whole perimeter to the FBH.
FBH type	Tubes
FBH description (e.g. dimensions tubes/material/lay-up)	25CrMo4 steel tubes, 28x1.5mm
FBH dimensions (width & height, mm)	360x360mm
FBH with diagonal or X-brace (T3.17.7)?	Diagonal
Dynamic testing (T3.19)	No - N/A

Dynamic Testing Summary

Test type (e.g. barrier/drop test), date & site	
Test speed (> 7 m/s)	
Test weight (<= 300 kg)	
Energy absorbed (>= 7350 J)	
Peak deceleration (<= 40 g)	
Avg. deceleration (<= 20 g)	
Peak force (kN)	
Aerodynamic devices and/or sensors in front of FBH (add description)?	
Aerodynamic devices, sensors and/or dummies thereof included in test (add description)?	
Combined peak force (<= 120 kN)	
Max. displacement (during test) (mm)	
AIP deformation (<= 25 mm)	

École Centrale Lyon

Impact Attenuator Data Form

Sommaire

1 Design of IA, positionning on the AIP **2**

2 Method for attachment of the IA to the AIP **2**

3 Dimensions of the front bulkhead and proof of an additional diagonal **2**

4 Design of the AIP **4**

5 Method for attachment of the AIP to the front bulkhead **4**

6 Proof of the IA material reception **4**

7 Annexe : IA datasheet **4**

1 Design of IA, positionning on the AIP

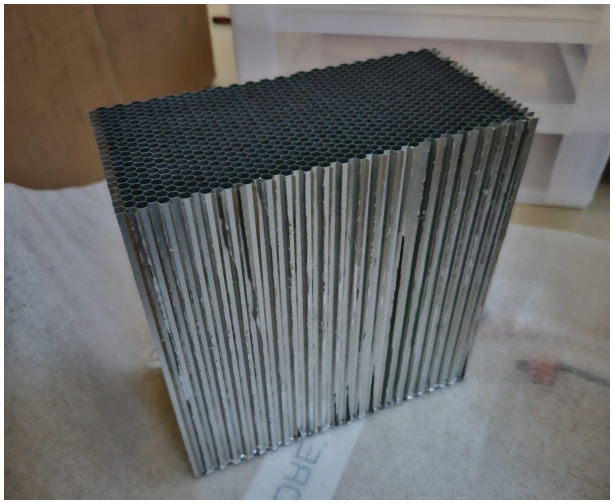

FIGURE 1 – Impact Attenuator

The IA is the Standard honeycomb IA (pre-crushed) one and has a volume of 100x200x200mm^3

2 Method for attachment of the IA to the AIP

The Crashbox is glued to the Anti Intrusion Plate on its pre-crushed face. Here follows the technical sheet of the glue used.

3 Dimensions of the front bulkhead and proof of an additional diagonal

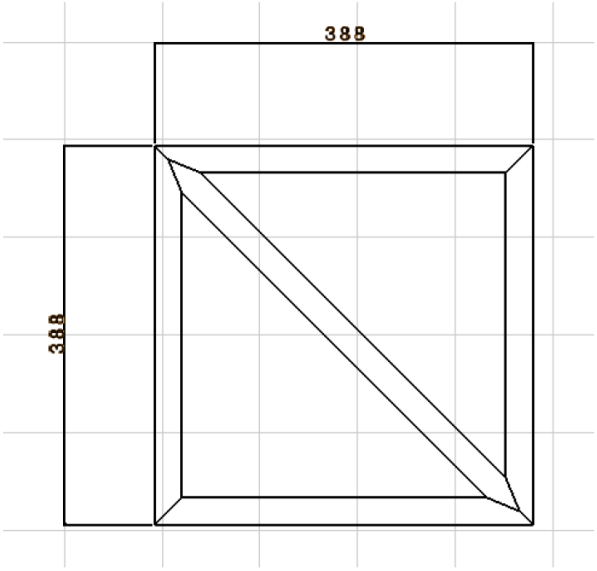

FIGURE 2 – Dimensions of the front bulkhead

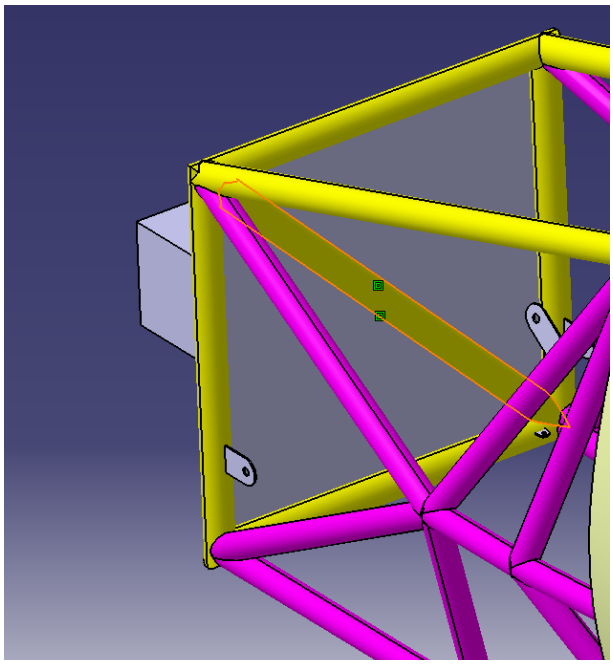

FIGURE 3 – Proof of the presence of an additional diagonal member

The front bulkhead measures 388mm x 388mm. The tubes have an external radius of 14mm. You can also see on a previous image the effective diagonal tube.

4 Design of the AIP

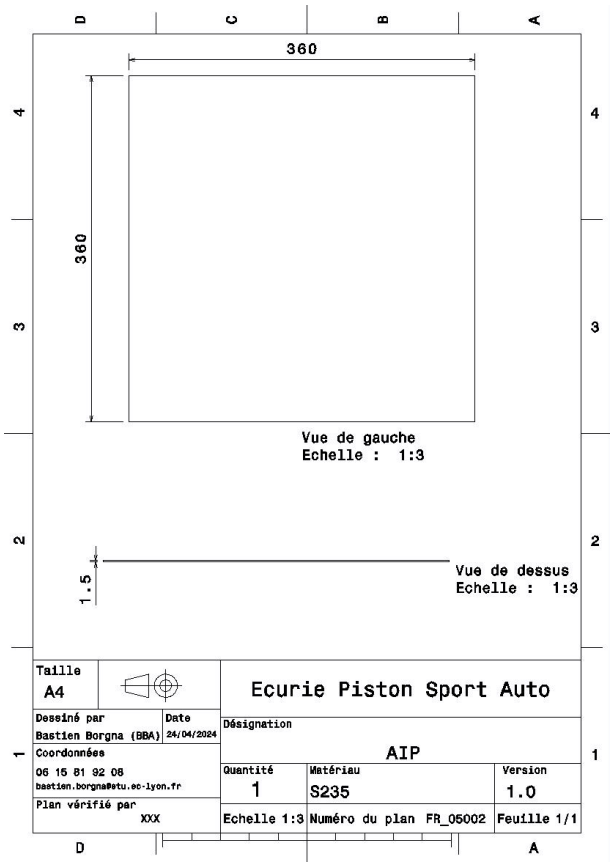

FIGURE 4 – Development plan of the AIP

The AIP is made out of S235 steel and 1.5mm thick, to show compliance with rule T 3.17.3

5 Method for attachment of the AIP to the front bulkhead

The AIP is welded on its whole perimeter to the FBH.

6 Proof of the IA material reception

7 Annexe : IA datasheet

We are currently on holidays and we don't have access to all the information. We will send you the missing ones in the coming weeks.