FIM REQUIREMENTS FOR GRAND PRIX AIRBAG 2018

VERSION 2 (07.09.2018)

Effective from the start of the 2018 season.

It is compulsory that the rider's race suit be fitted with an Airbag system. All Airbag systems must comply with the requirements detailed below. The following procedures will apply:

- Each different design or model must pass all the tests required into the regulation.
- Manufacturers will be required to self-certify on the official document for the race suit that their systems have passed the standards.

Every rider has to start a session with a functional airbag system. Once the airbag has been deployed, the responsibility for continuing the practices or race stays with the rider, with the following exclusions

For Substitute or replacement riders the use of an airbag in their racing suit recommended for their first event of the season. However, for the following races, the use of an airbag system is compulsory.

It is compulsory for wildcards to wear an airbag in their racing suit.

FIM Requirements for the Airbag System.

1. GENERAL

The airbag:

- Shall be triggered without requiring the rider to be connected (tethered) to the motorcycle or to add any device on the motorcycle.
- Once triggered, the inflation time must not be greater than 200 milliseconds.
- Once inflated, the airbag should remain inflated at least 3 seconds.
- Must be designed in such a way that if accidental deployment occurs, the rider has the ability to keep riding the motorcycle and to not lose the control of the bike. Each manufacturer declares the reliability of its airbag system, based on internal tests implying a real inflation while a pilot is riding.
- Must be fitted internally in the race suit.
- During deployment, the Airbag must not cause injury to the rider and the other riders.

2. ASSESSMENT OF IMPACT ENERGY ABSORPTION

a) Minimum dimension of the protection areas

The airbag should cover and protect at least the shoulders and the collarbone, as pictured in Figure 1.

Each manufacturer can extend the protectiveness of their systems. Any airbag that protects a rider's back, must have full coverage of the spine.

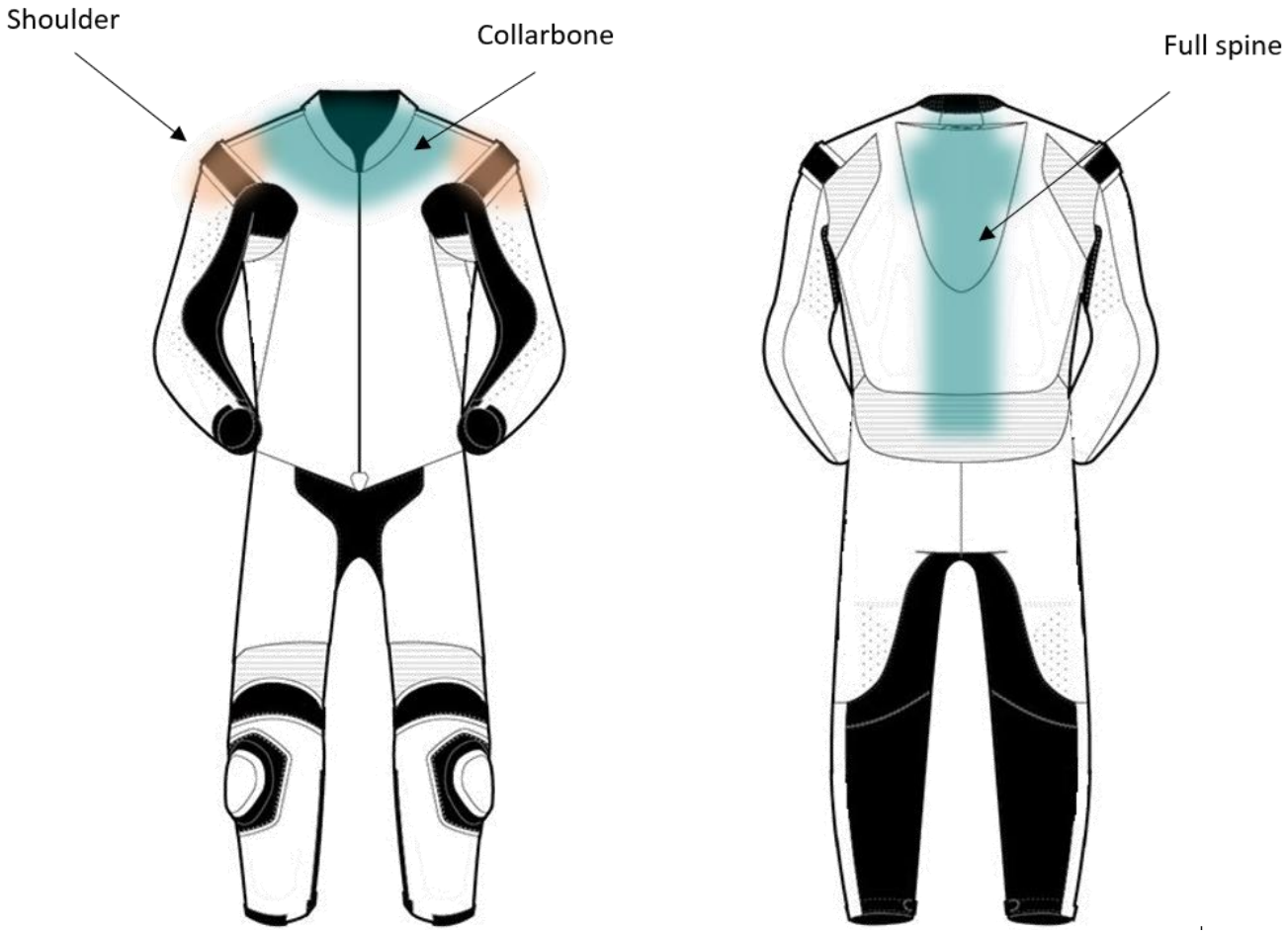


Figure 1 — Minimum area of protection

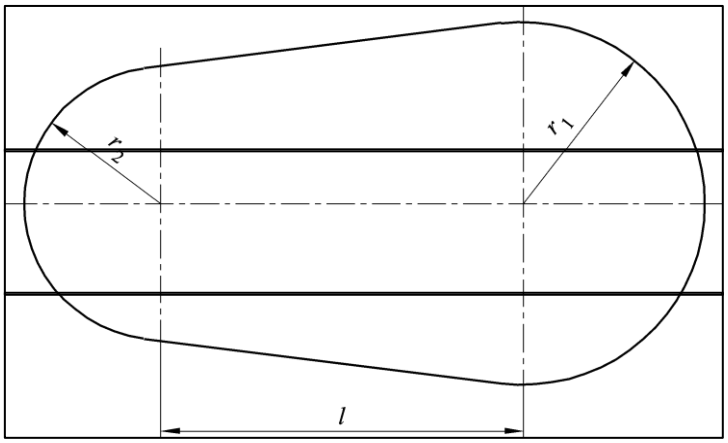
Guidance:

- Areas are defined as a general basis but may vary depending on airbag technologies employed and morphology of the riders.
- Regarding the shoulders, the airbag shall cover at least the area defined in the standard 1621-1, according to Table 1 and Figure 2.
- If the airbag covers the back, the airbag shall cover the zones defined in the standard 1621-2. Full or Central back is mandatory.
- For areas no covered by an existing standard, dimensions and shape of the template for the testing method must be supplied by the manufacturer to the GP commission.

Table 1 — Dimensions of minimum zone of protection for shoulders

Protector	**Minimum protector area - type A** mm		
	r_1	r_2	l
S	55	32	64

Figure 2 — Shape of the zone of protection for shoulders



b) Impact attenuation requirements

For airbag presenting shoulder and collarbone protection

An impact test according to the testing method described in the norm EN1621-1 has to be carried out on the shoulder and collarbone, with the following inclusions/modifications.

The full gear (airbag system + leather suit + protector) has to be tested in the inflated status.

4 impacts are tested: 2 on the shoulders area and 2 on the collarbone area. The average peak force of the 4 measurements shall be below 18kN and at least one of the value shall be below 4.5 kN.

Table 2 — Impact attenuation performance

Average peak force	≤ 18 kN
Peak force of at least one value	≤ 4.5 kN

For airbag presenting shoulder, collarbone and back protection

An impact test according to the testing method described in the norm EN1621-1 and EN1621-2 has to be carried out on the shoulder and collarbone or on the shoulder and back, with the following inclusions/modifications.

The full gear (airbag system + leather suit + protector) has to be tested in the inflated status.

4 impacts are tested: 2 on the shoulders area and 2 on the collarbone or back area. The average peak force of the 4 measurements shall be below 18kN and at least one of the value shall be below 4.5 kN (see Table 2).

Table 2 — Impact attenuation performance

Average peak force	≤ 18 kN
Peak force of at least one value	≤ 4,5 kN

3. ASSESSMENT OF HARD COMPONENTS

Hard components are defined as the electronic unit, airbag inflator and battery (if separate). They must be designed to avoid any risks of additional injury with or without an airbag inflation.

When assembled in the suit, hard components must guarantee impact protection according to EN1621-1, without airbag inflation. The peak force recorded after a single impact shall be below 35 kN (Table 3).

Table 3 — Impact attenuation performance

Single strike	≤ 35 kN

All batteries must pass the following conditions at the time of the impact and for the next 12 hours after the test.

- Do not catch fire or make any sparks
- Do not release any gases or liquid
- Do not change size (other than that caused by the impact test)

The electronic unit must have a minimum 3 hours operational life in between full charges.

4. EQUIPMENT AND TEST METHODS

All impact tests are done with the same equipment and test methods as described in the standards EN1621-1 and EN1621-2.

The values of performance requirement for each part, are given in the above paragraphs.