



## **REGULATIONS FOR THE APPROVAL OF WRESTLING MATS**

### **FILA SCIENTIFIC QUALIFICATION STANDARDS**

#### **MATS FOR HIGH LEVEL COMPETITION**

**(OLYMPIC GAMES – WORLD AND CONTINENTAL CHAMPIONSHIPS – WORLD AND CONTINENTAL CUPS BY TEAMS – CONTINENTAL AND REGIONAL GAMES – FINALS OF “GOLDEN GRAND PRIX”)**

##### **Article 1**

For the Olympic Games, Continental and Regional Games, World Championships and Cups, Continental and Regional Championships and Cups, finals of “Golden Grand Prix”, as well as for any competition included in the FILA calendar, the use of NEW\* wrestling mats approved by the FILA is OBLIGATORY.

\*a mat is considered as new if it is less than one year old.

##### **Article 2**

Wrestling mats are approved on the basis of scientifically established standards and following payment by the manufacturer of fees laid down by the FILA.

##### **Article 3**

In addition to the technical specifications established in the standards, a wrestling mat must have the dimensions specified in the Wrestling Rules.

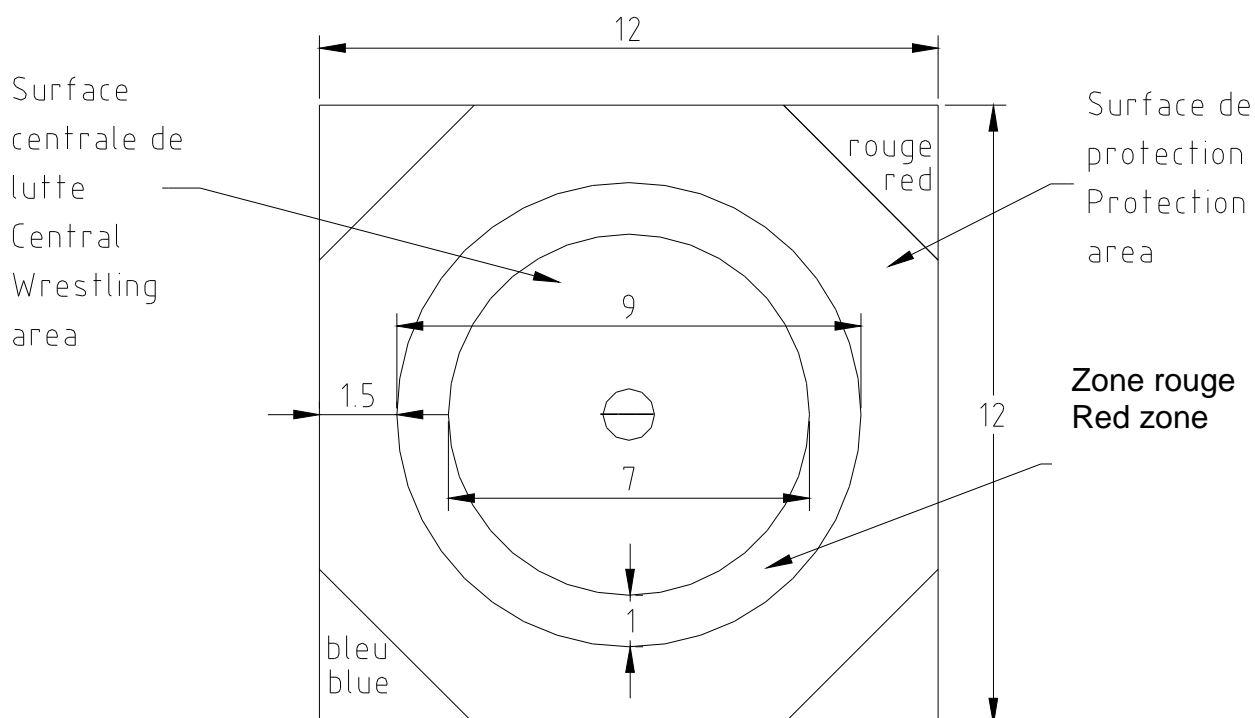
##### Measurement characteristics:

A standard wrestling mat must have a total square surface of 12 m x 12 m or octagonal with a diameter of 12 m.

FILA official marking must be indelibly applied as follows :

- a) white circle of 1 meter diameter defining the center of the mat. A portion of the circle must be marked out for the feet, knees and hands of the wrestlers when they are in the clinch position.

- b) central wrestling area with a diameter of 7 meters
- c) passivity zone represented by a red band of 1 meter width
- d) protection area of 1,5 meter width
- e) star corners, one red and one blue, marked on opposite corners.



**Manufacture of the mats:**

The mat can be formed of one or several elements of the producer's choice. These elements must be between 5 cm and 7 cm thick.

In any case, the wrestling surface must be perfectly smooth, without any serious unevenness, gap or disjunction, by any means at the producer's choice, as long as the surface meets the above mentioned requirements. Adhesive strips must be avoided since the disadvantages they present (unstitching, cuts caused by rubbing or storage of glue and dust) may be prejudicial to safety and hygiene.

The technology currently applied means that a canvas cover must always be used to protect the mat. This canvas cover must be easily stretchable by an adjustable tension device which will be used to eliminate folds. The cover must be smooth and uniform to avoid any kind of skin burns and easily washable.

#### **Article 4**

Upon request of the producer, the mat shall be submitted to the "Laboratoire National d'Essais" (L.N.E.) in France, member of the International Standardisation Organisation (ISO), which will subject it to quality tests.

These tests will be carried out every four years, after the Olympic Games.

If, however, during a four year Olympic cycle, a manufacturer modifies the texture of his mat and would like to market it during the next Olympic Games, he will have the possibility to ask the FILA to submit it to the L.N.E. for testing.

In every case, the costs of the tests will be incurred by the manufacturer.

#### **Article 5**

The approval procedure also includes a test carried out during a competition, on the course of which the wrestling mat is subjected to the inspection of a Commission appointed by the FILA President.

If this test is carried out at the express request of the manufacturer, the latter shall bear all the expenses of the three FILA Commission members.

#### **Article 6**

The manufacturer whose mats are approved by the FILA will be able to request the approval of its wrestling mats for duration of four years (one Olympic cycle).

The manufacturer will have to agree contractually beforehand that he will :

- a) market the model and type of FILA approved mats, carrying the label FILA, and strictly identical to the sample submitted for testing. Each part of the mat must wear the reference number and the type of the FILA approved mat.
- b) inform FILA of any changes in the manufacturing of the mat in order to submit this modification to the LNE for testing and to the FILA Technical Commission for a proposal to FILA approval.
- c) clearly differentiate between FILA approved and FILA non approved mats in its catalogues and advertising (reference number, type and precise name of the mat)
- d) pay the annual approval fee for compliance with FILA standards as laid down in article 7 below.
- e) to provide in kind each year the utilisation fee as laid down in article 7 b

## **Manufacturer's rights**

The manufacturer of FILA approved mats has the following rights :

- to place a sticker stating "FILA approved" on the edge of its mat
- to include, along the edge of the mat, a list of all the World Championships, Olympic Games, World Cups and Continental Championships at which its mats have been used
- he has the right and he must, according to the FILA Organisational Regulations, require from the organisers of the Olympic Games, Continental and Regional Games, World Championships and Cups, Continental Championships and Cups, finals of the "Golden Grand Prix", the exclusive use of approved mats as stipulated in the FILA Constitution and Regulations. It is possible to use the FILA approval certificate of the mat concerned for advertising purpose, the reference and type of mat must be mentioned.
- the FILA will regularly publish the list of mats approved by it in the FILA News Bulletin and in the FILA Internet site.

## **Article 7**

The manufacturer whose mat, after having been tested by the LNE, has been acknowledged in conformity with the FILA standards, will have to satisfy the following financial obligations in order to be approved :

- a) pay an annual approval fee of Swiss Francs 2'500.- (two thousands five hundred Swiss Francs)

This fee is payable every year, without exception. The manufacturer agrees to pay the fee to the FILA, upon receipt of the invoice at the beginning of each year and for the whole duration of the four year period separating two Olympiads.

- b) In the event of the mats being selected for the Olympic Games, World Championships and World Cups, Continental Championships, Cups and Games, for all age groups, the manufacturer must pay the utilisation fee in kind according to the following tariff :

Olympic Games	3 approved mats measuring 12 m x 12 m
World Championship, World Cups	2 approved mats measuring 12 m x 12 m
Continental Championships, Continental Cups and Games	1 approved mat measuring 12 m x 12 m

The above mentioned mats are to be sent to the developing countries concerned by the manufacturer as per the instructions received from the FILA.

Transport and customs expenses, if the case arises, are to be paid by the FILA directly to the manufacturer.

## **Article 8**

Manufacturers who stop paying the annual fee may only request renewal of the approval and the approval label after the completion of an Olympic cycle, i.e. after four years.

The acceptance of an approval renewal application will be decided by the FILA Executive Committee, after examination of the testing report sent by the "Laboratoire National d'Essais" and of the report from the FILA Technical Commission.

If the manufacturer cannot keep to its agreement, the FILA reserves the right to remove the FILA approval and therefore the right for its mats to be used at international competitions notwithstanding the FILA's right to sue for damages and interest for breach of contract.

## **Article 9**

A systematic inspection of the quality and technical characteristics of an approved mat will be carried out in the course of every four-year period by the Laboratoire National d'Essais, authorized by the FILA. No amendment may be made to the standards initially established without being previously submitted to the FILA for approval.

## **Article 10**

In accordance with these Regulations, and within the framework of scientific research, any mat manufacturer may request the FILA to approve a new product on the basis of a report which clearly establishes the technical characteristics and texture of the new product proposed, and which as it complies with the standards, will be tested by the Laboratoire National d'Essais prior to its inclusion in the manufacture of a new and approved wrestling mat.

Enclosure : document "FILA SCIENTIFIC QUALIFICATION STANDARDS

Corsier, May 2007



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### **MATS FOR HIGH LEVEL COMPETITIONS**

#### **(OLYMPIC GAMES – WORLD AND CONTINENTAL CHAMPIONSHIPS – WORLD AND CONTINENTAL CUPS – CONTINENTAL AND REGIONAL GAMES - FINALS OF GOLDEN GRAND PRIX)**

##### **1. SUBJECT**

The FILA qualification standard is designed to optimise the quality of wrestling mats during international competitions. Not only does it take into account the properties which facilitate a good wrestling technique, but also, and more importantly, the safety criteria which, where possible, prevent and limit incidents and accidents which could harm wrestlers' health and safety.

##### **2. SAMPLE**

The sample submitted for testing must be at least 500mm x 500mm.

##### **3. AIMS OF THE TESTS**

The tests aim to obtain mechanical characteristics, drawn up from repeat shock tests with the aim of supplying the FILA with the data measured. The FILA has laid down the relative requirements in the "performance-protection" compromise for wrestling mats with a view to their approval.

##### **4. CONDITIONING AND PRELIMINARY MEASURES**

The reference zone is made up of the nine possible "measure points" which are marked on the upper surface of the sample.

The sample is placed in an air-conditioned room, at  $20 \pm 2^{\circ}\text{C}$ , for more than 24 hours preceding the test.

The dimensions of the sample are measured: the edges with the help of a ruler and the thickness at four points with a calliper. The mass is measured with precision scales. The dimensional and physical characteristics of the sample, with the cover, are measured in the following ways:

- sides (mm)
- average thickness (mm)
- mass (g)
- surface mass (g/dm<sup>2</sup>)
- volume mass (kg/dm<sup>3</sup>)

## **5. REPEAT IMPACT TEST CONDITIONS**

### **5.1 Equipment**

The testing equipment is comprised of a mechanical part, the impact machine and a computerised measuring chain.

The characteristics of the impacts generated are:

- total mass released (kg) : 10.025
- diameter of the impact head (mm): 100
- contact surface : flat, rounded edges (R=6mm)
- drop height (mm) : 400
- theoretical impact speed (m/s) : 2.80

The machine is used on a flat concrete floor which is at least 80mm thick and acts as an anvil.

The measuring chain allows numerical and analogue data to be obtained during the impacts from the following graphs:

- displacement-time
- acceleration-time

The numerical data are computerised in order to obtain the parameters indicated in the following paragraph and the analogue recordings are made for visual use, if necessary.

### **5.2 Operating method**

The sample, if it is skew not flat, is maintained on the ground using a metal corner iron frame (spreading the load of 1kg more or less over the edge of the sample).

After having set the drop height to 400 mm above the upper surface of the mat at rest, there are three series of eight impacts on three different parts of the sample.

The results concerning the first two drops on each area are recorded but are not used in the calculations.

### 5.3 Information used

Four parameters (obviously concerning all of them, the first in the event of multiple rebounds) are recorded, the first on the displacement / time graph and the following ones on the acceleration / time graph.

- penetration deepness (P pen in mm): maximum compression of the impact head in relation to the superior surface at rest
- maximum acceleration (G max. en g): absolute value of the maximum acceleration at the moment of impact
- energy absorbed (E abs. in %): energy absorbed by the sample during impact expressed as a percentage of the theoretical energy of the impact head at the moment of the initial impact (calculated from the V reb.)
- contact time (Tc in ms) : time during which the acceleration is of an opposite sign to the acceleration time of gravity.

## 6. DATA TREATMENT

The treatment consists of calculating, for each impact point, from the information obtained in the 3<sup>rd</sup> to the 8<sup>th</sup> impacts, the mean, maximum and minimum values and the typical differences and the differences of each of the parameters recorded and to draw up a table summarising the mean values obtained for each of the points.

## 7. RESULTS

The mean general values for each parameter are indicated in the following manner:

P pen (mm)	G max (g)	E abs (%)	Tc (ms)
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The FILA qualification criteria concern the four parameters mentioned above.

The values required for FILA qualification are:

- P pen (mm)            ≤ 38
- Tc (ms)                ≤ 50
- G max (g)             ≤ 30
- E abs (%)              ≥ 70

The comparison between the values required for FILA qualification and the values measured determine if the product conforms or not.

Corsier, May 2007