

FIRA Youth Laws of the Game

“Cliffhanger”

Division: Lightweight categories U14, U19 (Mrobot<1Kg)

Heavyweight categories U19 (1Kg<Mrobot<3Kg)

Participation: 1 Robot per Team, 1-4 person

1. Definition of the competition:

This is a match fought between two teams in two different classes, **Lightweight** (Mrobot<1Kg) and **Heavyweight** categories (1Kg<Mrobot<3Kg). In accordance with the game rules (hereafter referred to as "the rules",) each team competes on a Dohyo (sumo ring) with a robot that they have constructed themselves to the specifications in Section 2.

2. Requirements for Robots:

2.1. General Robot Specifications

2.1.1. The following are specifications for all robots. All robot classes compete in same division.

Class	Height	Width	Length	Weight	Built on Site
Lightweight categories U14, U19	Unlimited	15cm	15cm	M<1,000g	Yes
Heavyweight categories U19	Unlimited	20cm	20cm	1,000g<M<3,000g	Yes

2.1.2. A robot must fit within a square tube of the appropriate dimensions for the given class.

2.1.3. The total mass of a robot at the start of a match must be under the designated weight for the given class.

2.1.4. A robot may expand in size after a match begins, but must not physically separate into pieces, and must remain a single centralized robot. Robots violating these restrictions should lose the match. Screws, nuts, and other robot parts with a total mass of less than 5 g falling off from a robot's body should not cause the loss of match.

2.1.5. Robots must be autonomous.

2.1.6. After the draw session of leader meeting, each robot gets a draw number for registration purposes. Display this number on your robot to allow spectators and officials to identify your robot. Robots without the number will not pass inspections.

2.2. It is allowed to use the platforms such as LEGO robots. Requirements for LEGO robots: the robot must only be built out of LEGO® electronic parts, including: controllers, motors, sensors

2.3. Restrictions for all robots:

2.3.1. Jamming devices, such as IR LEDs intended to saturate the opponents IR sensors, are not allowed.

2.3.2. Parts that could break or damage the Dohyo are not allowed. Do not use parts that are intended to damage the opponent's robot or its operator. Normal pushes and bangs are not considered intent to damage.

2.3.3. Storing liquid, powder, gas, or other substances is allowed, but to purposely throw such substances is not allowed.

2.3.4. Any flaming devices are not allowed.

2.3.5. Devices that throw things at your opponent are not allowed.

2.3.6. Sticky substances to improve traction are not allowed. Tires and other components of the robot in contact with the ring must not be able to pick up and hold a standard A4 paper (80 g/m²) for more than two seconds.

2.3.7. All edges, including but not limited to the front scoop, must not be sharp enough to scratch or damage the Dohyo, other robots, or players. Judges or competition officials may require edges that they deem too sharp to be covered with a piece of tape.

2.3.8. All parts except the electronic parts (such as sensors, controllers, motors, etc.) must be made of nonmetallic materials (including but not limited to bolts and nuts, motor bracket, structural board, shovel, etc.).

2.3.9. The input power of Non-LEGO robots shall not exceed DC 9V and the total power shall not exceed 5W with all motors running without load. A regulated power supply will be used for testing on site.

3. Competition field (Dohyo):

3.1. Dohyo Interior

The Dohyo interior is defined as the playing surface surrounded by and including the border line. Anywhere outside this area is called the Dohyo exterior.

3.2. Dohyo Specifications

3.2.1. The ring should be circular in shape and of the appropriate dimensions for the given size class.

3.2.2. The border line is marked as a white circular ring of a width appropriate for the given class on the outer edge of the playing surface. The ring area extends to the outside edge of this circular line.

3.2.3. For all given Dohyo dimensions, a tolerance of 5% applies.

Diameter	Border Width	Material	Minimal Dohyo Exterior	Obstacle
120cm	5cm	Wooden	100cm	Yes

3.3. The obstacle:

The obstruction is a cylinder fixed at the center of the Dohyo; it has a diameter of 20cm and height of 20cm and colored by silver. A grey ring with a width of 5cm is painted around the obstruction.

3.4. Dohyo Exterior:

There should be a space appropriate for the given class outside the outer edge of the ring. This space can be of any color, and can be of any material or shape as long as the basic concepts of these rules are not violated. This area, with the ring in the middle, is to be called the "ring area". Any markings or parts of the ring platform outside the minimum dimensions will also be considered in the ring area.

4. Competition:

4.1. Qualification Round: All teams need to complete a mission within the specified time before lot. Teams that have not completed will not be able to participate competition.

4.1.1. Sample Mission: Robot turn to obstacle - Go forward to gray area - Stop.

4.2. One match should consist of 3 rounds, within a total time of 3 minutes, unless extended by the judges.

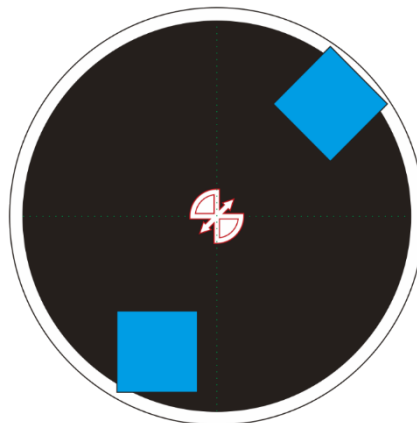
4.3. The team who wins two rounds or receives two "Yuhkoh" points first, within the time limit, should win the match. A team receives a "Yuhkoh" point when it wins a round. If the time limit is reached before one team can get two "Yuhkoh" points, and one of the teams has received one Yuhkoh point, the team with one Yuhkoh point should win.

4.4. When the match is not won by either team within the time limit, an extended match may be fought, during which the team who receives the first Yuhkoh point should win. Alternatively, the winner/loser of the match may be decided by judges, by means of lots, or by a rematch.

4.5. One Yuhkoh point will be given to the winner when the judges' decision is called for or lots are employed.

4.6. Competition preparation (robot placing)

Upon the judge's instructions, the two teams approach the ring to place their robots on the ring. A cross in the middle divides the sumo ring into 4 quadrants. Robots always have to be placed in 2 opposing quadrants directed by the arrows of the cross. The robots may be placed at any place within the assigned quadrant, but have to be touching the outer white circle. The judge will remove the cross after the robots are positioned. After positioned, the robots are not allowed to be moved by any means.



Sample of Robot Placing

4.7. Start:

In the class of autonomous game, the judge announces the start of the round. The teams start their robots, and after a five second pause the robots may start operating. Within five seconds, players must clear out of the ring area.

4.8. Stop, Resume:

The match stops and resumes when a judge announces so.

4.9. End:

The match ends when the judge announces so. The two teams retrieve the robots from the ring area.

4.10. Time of the Game:

4.10.1. Duration: One Match will be fought for a total of 3 minutes, starting and ending upon the judge's command.

4.10.2. Extension: An extended match, if called for by the judge, should last for a maximum of 3 minutes.

4.10.3. Timekeeping: The following instances are not included in the time of the Match:

4.10.3.1. The time elapsed after the judge announces Yuhkoh and before the match resumes. The standard delay before the match resumes should be 30 seconds.

4.10.3.2. The time elapsed after a judge announces to stop the match and before the match resumes.

4.11. Rematch: A rematch is called under the following conditions:

4.11.1. The robots are entangled or orbiting each other with no perceivable progress for 5 seconds. If it is unclear whether progress is being made or not, the judge can extend the time limit for observable progress for up to 30 seconds.

4.11.2. Both robots move without making progress, or stop (at the exact same time) and stay stopped for 5 seconds without touching each other. However, if one robot stops its movement first, after 5 seconds it will be declared as not having the will to fight. In this case the opponent should receive a Yuhkoh, even if the opponent also stops. If both robots are moving and it isn't clear if progress is being made or not, the judge can extend the time limit up to 30 seconds.

4.11.3. If both robots touch the outside of the ring at about the same time, and it cannot be determined which touched first, a rematch is called.

5. Scoring:

5.1. One Yuhkoh point should be given when:

5.1.1. A team legally forces the body of the opposing robot to touch the space outside the ring (the ring includes the side of the ring its self).

5.1.2. The opposing robot has touched the space outside the ring on its own.

5.1.3. Either of the above takes place at the same time that the end of the Match is announced.

5.1.4. When a wheeled robot has fallen over on the ring or in similar conditions, Yuhkoh will not be counted and the match continues.

5.2. When judges' decision is called to decide the winner, the following points will be taken into considerations:

5.2.1. Technical merits in movement and operation of a robot

5.2.2. Attitude of the players during the match

6. Violations:

6.1. Players performing any of the behavior described in Sections 2.5, 6.2 or 6.3 should be declared in violation of these rules.

6.2. Insults:

A player who utters insulting words to the opponent or to the judges or puts voice devices in a robot to utter insulting words or writes insulting words on the body of a robot, or performs any insulting action, is in violation of these rules.

6.3. Minor Violations: A minor violation is declared if a player:

6.3.1. Enters into the ring during the match, except when the player does so to take the robot out of the ring upon the judge's announcement of Yuhkoh or stopping the match. To enter into the ring means:

6.3.1.1. A part of the player's body is in the ring, or

6.3.1.2. A player puts any mechanical kits into the ring to support his/her body.

6.3.2. Performs the following behaviors:

6.3.2.1. Demand to stop the match without appropriate reasons.

6.3.2.2. Take more than 30 seconds before resuming the match, unless the judge announces a time extension.

6.3.2.3. Start operating the robot within five seconds after the chief judge announces the start of the match.

6.3.2.4. Behaviors or sayings that disgraces the fairness of the match.

7. Penalties:

7.1. Players who violate these rules by performing the deeds described in Sections 2.5 and 6.2 should lose the match. The judge should give two Yuhkoh points to the opponent and order the violator to clear out. The violator is not honored with any rights.

7.2. Each occasion of the violations described in Sections 6.3 should be accumulated. Two of these violations should give one Yuhkoh to the opponent.

7.3. The violations described in Article 6.3 accumulate throughout one match.

8. Injuries and Accidents during the Match:

8.1. Request to Stop the Match:

A player can request to stop the game when he/she is injured or his/her robot had an accident. If the judge gives permission, the game can be stopped.

8.2. Unable to Continue the Match:

When the game cannot continue due to player's injury or robot's accident, the player who is the cause of such injury or accident loses the match. When it is not clear which team is such a cause, the player who cannot continue the game, or who requests to stop the game, should be declared as the loser.

8.3. Time Required to Handle Injury/Accident:

Whether the game should continue in case of injury or accident should be decided by the judges and the Committee members. The decision process should take no longer than five minutes.

8.4. Yuhkoh Given to the Player Who Cannot Continue:

The winner decided based on Section 8.2 should gain two Yuhkoh points. The loser who already gained one Yuhkoh point is recorded as such. When the situation under Section 8.2 takes place during an extended match, the winner should gain one Yuhkoh point.
