

RobotChallenge- Robot Sumo Rules (excerpt)

1. Definition of the Sumo Match

1.1. Definition

A match is fought between two teams, each team having one or more contestants.

Only one team member may approach the ring; other team members must watch from the audience. In accordance with the game rules (hereafter referred to as "these rules",) each team competes on a Dohyo (sumo ring) with a robot that they have constructed themselves to the specifications in Section 2. The match starts at the judge's command and continues until a contestant earns two Yuhkoh points. The judge determines the winner of the match.

2. Requirements for Robots

2.1. General Robot Specifications

- A. The following are specifications for all robots. Additional specifications for LEGO Sumo robots are in section 2.2
- B. A robot must fit within a square tube of the appropriate dimensions for the given class.
- C. The total mass of a robot at the start of a match must be under the designated weight for the given class.

LEGO Sumo Unlimited 15 cm 15 cm 1.000 g

- D. A robot may expand in size after a match begins, but must not physically separate into pieces, and must remain a single centralized robot.
- E. All robots must be autonomous. Any control mechanisms can be employed, as long as all components are contained within the robot and the mechanism does not interact with an external control system (human, machine, or otherwise).

3. Requirements for the Dohyo (Sumo Ring)

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

- A. The ring (black) shall be circular in shape and of the appropriate dimensions for the given size class.
- B. 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.
- C. For all given dohyo dimensions a tolerance of 5% applies.

Class Diameter Border

Width / Material / Minimum Exterior Space

Mini / LEGO 77 cm 2,5 cm Wood 50 cm

3.3. Doyho 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.

3.4. How to Carry Sumo Matches

- A. One match shall consist of 3 rounds, within a total time of 3 minutes, unless extended by the judges.
- B. The team who wins two rounds or receives two "Yuhkoh" points first, within the time limit, shall win the match. A team receives a "Yuhkoh" point when they win 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 shall win.
- C. 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 shall win. Alternatively, the winner/loser of the match may be decided by judges, by means of lots, or by a rematch.
- D. One Yuhkoh point shall be given to the winner when the judges' decision was called for or lots were employed.

4. Start, Stop, Resume, End a Match

4.1. 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. The robots have to be placed at the border within the assigned quadrant. The robot has to cover the white border at least partially. The judge will remove the cross after positioning of the robots. After placing, the robots may not be moved anymore.

4.2. Start

A. The judge announces the start of the round. The teams start their robots, and after a five second pause the robots may start operating. During these five seconds, players must clear out of the ring area.

4.3. Stop, Resume

The match stops and resumes when a judge announces so.

4.4. End

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

5. Time of Match

5.1. Duration

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

5.2. Extention

An extended match, if called for by the judge, shall last for a maximum of 3 minutes.

6. Scoring

6.1. Scoring for Non-Humanoid Robots

One Yuhkoh point shall be given when:

- A. A team legally forces the body of the opposing robot to touch the space outside the ring, which includes the side of the ring its self.
- B. The opposing robot has touched the space outside the ring on its own.
- C. Either of the above takes place at the same time that the end of the Match is announced.
- D. When a wheeled robot has fallen over on the ring or in similar conditions, Yuhkoh will not be counted and the match continues. When judges' decision is called for to decide the winner, the following points will be

taken into considerations:

- A. Technical merits in movement and operation of a robot
- B. Penalty points during the match
- C. Attitude of the players during the match

The match shall be stopped and a rematch started under the following conditions:

- A. 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.
- B. 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 shall 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.
- C. If both robots touch the outside of the ring at about the same time, and it can not be determined which touched first, a rematch is called.