



# Robot Sumo

# RULES

Revised Document 03/20/2023

## Robot Sumo | Rules

### Mega Sumo (3kg), Mini Sumo (500g), and LEGO® Sumo

Revised Document 03/20/2023 - Version 3.0 - English

[Based in All Japan Robot Sumo Tournament Official Regulation - Version 4.3 – English - Fujisoft Incorporated]

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## 1. Glossary:

### C

- **Crystal:** a piezoelectric device used to determine the frequency range and channels in traditional radio control systems.
- **Judge's Remote Control:** the official remote control used only by judges to start/stop the movement of an autonomous robot.

### D

- **Dohyo:** the space where robots battle.
- **Dohyo Jonai:** the entire area considered the battle zone.
- **Dohyo Jogai:** the outer area of the *Dohyo Jonai*.

### F

- **Fusensho:** a victory without a fight due to the opponent not appearing or when the opposing robot does not function for the match.

### H

- **Hakama:** a rectangular truncated pyramid that serves as the base of the *Dohyo*.
- **Hansoku:** violation or penalty.
- **Hansoku-Make:** losing a match due to violation or penalty.

### K

- **Keikoku:** warning or advice.

### P

- **PCS:** Proportional Control System, the radio control system used in RC type, consisting of a transmitter and a receiver.
- **Match:** the confrontation between 2 robots and is mainly composed of 3 rounds.

### R

- **Round:** the time when 2 robots fight with the goal of pushing the opponent out of the *Dohyo*.

### S

- **Shikiri-sen:** starting line, delimits where the robot can be placed inside the *Dohyo*.
- **Shikkaku:** literally means disqualification.
- **Shinitai:** dead robot, referred to as a robot that cannot move because it does not move in the *Dohyo*.
- **SPCC:** cold-rolled carbon steel.

### T

- **Tawara:** dividing line or white line, delimits the outer edge of the *Dohyo*.
- **Torinaoshi:** rematch or repeat a round when determined by judges.

### Y

- **Yuko:** effective point and is considered for the robot that defeats the opponent during a round.
- **Yusei:** predominant robot, referred to the robot that showed more battle actions/initiatives.
- **Yochi:** the square area where the *Dohyo* is placed and delimits the safe area.

## 2. Introduction - What is Robot Sumo?

Robot Sumo is a category of robotics competition that simulates the Japanese national sport of sumo wrestling, Sumo 相撲. Robot Sumo has two types of robots: Radio-Controlled (RC) and Autonomous (Auto). The former is controlled by an operator through a radio control system, and the latter is operated autonomously by a program loaded into its system.

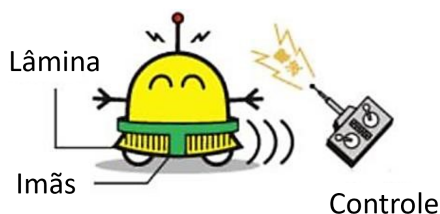


Figure 1 – Radio Controlled Robot Sumo

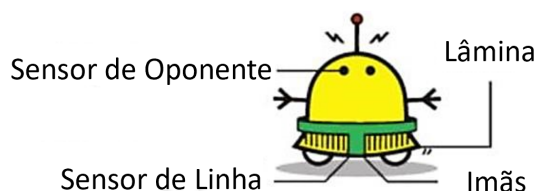


Figure 2 – Autonomous Robot Sumo

## 3. Chapter I - General Provisions

### [Objective]

#### Article 1

This regulation defines the rules of a match and regulations based on the current regulations of the Japan Robot Sumo Tournament (All Japan Robot Sumo Tournament Official Regulation).

## 4. Chapter II - Round Definition

### [Definition]

#### Article 2

- **Mega Sumo (3kg) and Mini Sumo (500g):** In a round, for each robot, only one "operator" and one "assistant" must be registered, provided that the assistant cannot act simultaneously as an operator. Competitors will play a round and compete for one Yuko point using either a Radio-Controlled or Autonomous robot on a *Dohyo* pre-allocated according to this official regulation (hereinafter referred to as "this Regulation"), and a judge will determine the winner.
- **LEGO® Sumo:** LEGO® Sumo robots must be "Autonomous type only". The same round system as Autonomous Mega Sumo and Mini Sumo will be used.

## 5. Chapter III - *Dohyo* Specifications

### [*Dohyo* Specifications]

#### Article 3

The *Dohyo* specifications must be as follows:

- **Definition of *Dohyo Jonai*:** A *Dohyo Jonai* consists of a *Dohyo* and a *Yochi*. The remaining space is called *Dohyo Jogai*.

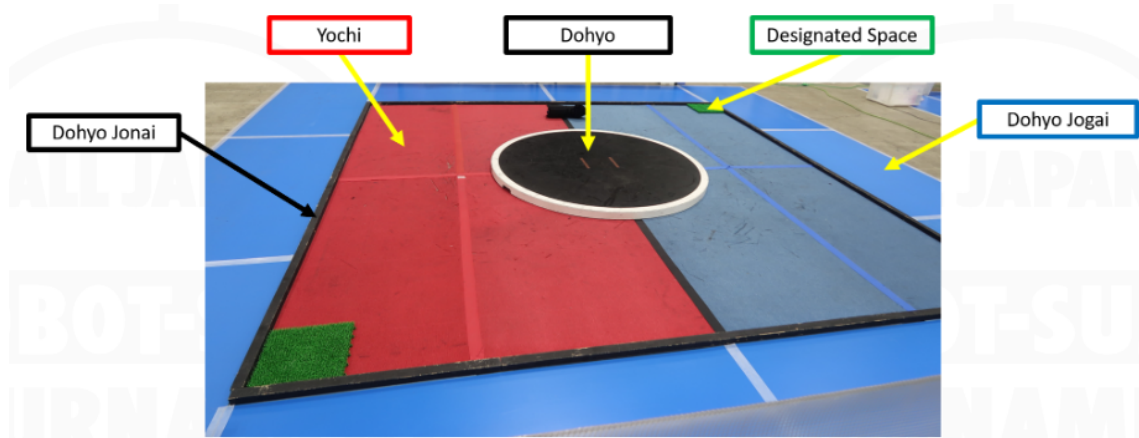


Figure 3 – Dohyo Jonai

- **Dohyo Specifications**

- **Mega Sumo (3kg):** The *Dohyo* should ideally be a circular aluminum structure with a diameter of 154cm (+/- 50mm), including the Tawara, and covered by a black SPCC sheet located on top, 5cm in height. In Brazil, due to the difficulty in using the SPCC sheet, the use of compatible steel with the same diameter and thickness of 6.35mm is allowed.
- **Mini Sumo(500g) and Sumo LEGO®:** The *Dohyo* should be a circular wooden board with a diameter of 77cm (including the Tawara), covered by a formica laminate located on top, 2.5cm in height.

- **Shikiri-Sen**

- **Mega Sumo (3kg):** *Shikiri-Sen* Mega Sumo (3kg): *Shikiri-Sen* should be indicated by two brown lines with a width of 2cm and a length of 20cm. Each line should be located 10cm to the right and left of the center of the *Dohyo*.
- **Mini Sumo (500g) and Sumo LEGO®:** *Shikiri-Sen* should be indicated by two brown lines with a width of 1cm and a length of 10cm. Each line should be located 5cm to the right and left of the center of the *Dohyo*.

- **Yochi**

- **Mega Sumo (3kg):** *Yochi* should be a square area whose side is 360cm. The shape and material are free, but attention should be paid to safety.
- **Mini Sumo (500g) and Sumo LEGO®:** *Yochi* should be a square area whose side is 180cm. The shape and material are free, but attention should be paid to safety.

**ATTENTION:** The *Dohyo* must always be completely supported on a flat surface. It is not allowed to place any device to raise its height and/or promote instability.

- **Tawara**

- **Mega Sumo (3kg):** *Tawara* should be indicated by a circular white line with a width of 5cm, from the inside to the outer line of the *Dohyo* (the *Tawara* should be considered inside the *Dohyo*).
- **Mini Sumo (500g) and Sumo LEGO®:** *Tawara* should be indicated by a circular white line with a width of 2.5cm, from the inside to the outer line of the *Dohyo* (the *Tawara* should be considered inside the *Dohyo*).

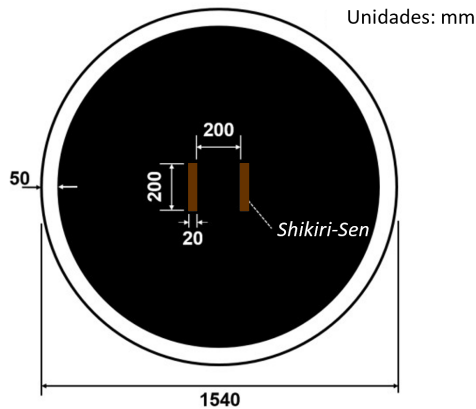


Fig.4 – Dohyo Mega Sumo (3kg)

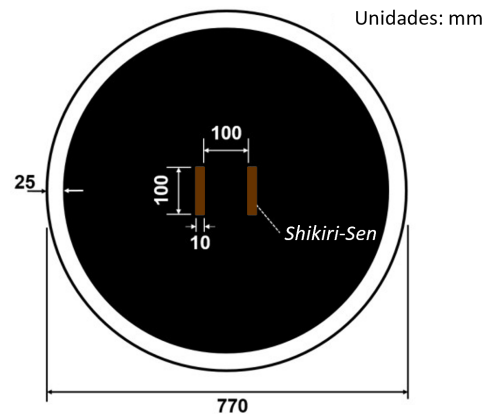


Fig.5 – Dohyo Mini Sumo (500g) and Sumo LEGO®

## 6. Chapter IV - Robot Specifications

### [Robot Specifications]

#### Article 4

The robot specifications should be as follows:

#### • Robot Dimensions

- **Mega Sumo (3kg):** The robot should have a length and width of no more than 20cm, without height restrictions, and be able to fit in a standard inspection box based on these dimensional limits.
- **Mini Sumo (500g):** The robot should have a length and width of no more than 10cm, without height restrictions, and be able to fit in a standard inspection box based on these dimensional limits. Any device or component used to fix the robot to the *Dohyo* is prohibited.
- **Sumo LEGO®:** The robot must have a length and width less than or equal to 15.2cm, with no height restrictions, and must be able to fit within a standard inspection box structure based on these dimensional limits. The robot must be built solely and exclusively using LEGO® parts and components in their original state. Any modifications, such as sanding parts to make them sharper, cutting or sanding parts to reduce their dimensions, gluing parts together to increase mechanical strength, using adhesive to hold parts together, among others, will result in the disqualification of the robot. Any device or component used to fix the robot to the *Dohyo* or to increase tire grip is prohibited.

**ATTENTION:** In all Robot Sumo categories, robots must be placed and removed from their respective inspection boxes without difficulty, and forcing the robot or parts of it to enter or exit the box is not allowed. Failure to meet this condition will result in the disqualification of the robot.

#### • Robot Weights

- **Mega Sumo (3kg):** O robô deve pesar menos que ou igual a 3.000g (incluindo todas as partes que o constituem). No caso dos robôs do tipo Rádio Controlado, o peso do PCS é excluído do limite de 3.000g.

- **Mini Sumo (500g):** The robot must weigh less than or equal to 500g (including all parts that constitute it).
- **LEGO® Sumo:** The robot must weigh less than or equal to 1,000g (including all parts that constitute it).

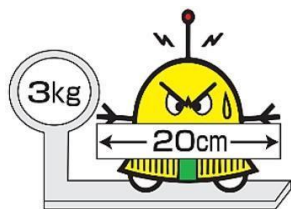


Fig.6 – Dimensions of Mega Sumo Robot

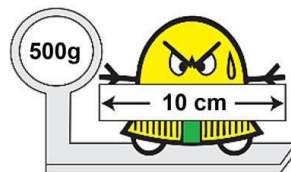


Fig.7 – Dimensions of Mini Sumo Robot

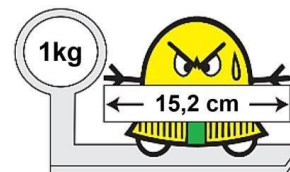


Fig.8 – Dimensions of LEGO® Sumo Robot

**ATTENTION:** The tolerance of the scale will not be taken into consideration to flexibilize the weight criteria of the robots. It is up to each team to verify, if necessary, adjust and validate their robots before the first match in each competition.

- **Usable Frequencies for Radio-Controlled Robots**

- The usable frequencies for radio-controlled robots must be narrow-band waves of 2.4GHz, 27MHz (channel 1 to 12) or 40MHz (channel 61, 63, 65, 67, 69, 71, 73, or 75).

- **PCS Requirement**

- Only one PCS will be allowed for each robot.
- For PCS, only the Fujisoft Shin Rajikon system or radio control systems manufactured by Futaba, JR, Sanwa, Kondo Kagaku may be used. (Any other brand may be considered if it complies with the rules of the usable frequencies and is presented and validated beforehand by the responsible party for the category in the competition).

- **Crystal (applicable only to Japanese competitors)**

- Competitors must bring and use crystal receiving parts for radio-controlled robots, according to the usable frequency range in the tournament, with prior approval from the administrative office. If the brought crystal contains any defects, competitors must use the parts provided by the administrative office.
- Participants must take preliminary measures so that the crystal receiving parts can be easily fixed and removed from the robot. This does not apply to cases where the competitor uses the Fujisoft Shin Rajikon System or other PCS brands.

- **Autonomous Type Robot: Initial Movement**

- The robot must start from the Judge's Remote Control signal for "start/stop". The Judge's Remote Control operation is performed by the judge or *Dohyo Jogai* support team.

- **Autonomous Type Robot: Stopping Movement**

- An Autonomous Type robot must be stopped by a Judge's Remote Control or by a player's remote control signal. The Judge's Remote Control operation is performed by the judge or *Dohyo Jogai* support team.
- If the "Remote Control" is radio wave-based, the frequency range used for Radio Controlled robot type in the tournament will not be allowed; except for 2.4GHz.

- **Blade Use Conditions**

- It is strictly prohibited to use materials that can be broken into two parts during robot operation or when robots come into contact.

- **Fire Prevention Measures**

- To prevent overcurrent to the battery, safety equipment such as fuses, *poly-switch*, and internal locking within the circuit must be used.

### **[Movement Conditions for Autonomous Type Robot]**

#### **Article 5**

A robot must be designed to detect, turn, face, and act on its own to show its fight against the opponent. In case of doubt in its movement, any operation check may be made under the instructions of the judges. (The operation check must be performed at the time the round ends, without any program alteration and before determining whether *Hansoku-Make* applies or not).

### **[Use Conditions of "Remote Control" for Autonomous Type Robot]**

#### **Article 6**

- Participants must place the "Remote Control" in a designated location and must not touch it until instructed by the judges.
- The operation of the "Remote Control" to stop the robot's movement must be performed from *Dohyo Jogai* and only after authorization from the judges.

### **[Prohibited Issues in Robot Design and Manufacture]**

#### **Article 7**

- Robots cannot contain disturbing wave generators or components that may disturb the control of the opponent robot, such as laser, flash, or infrared light.
- Any components that may scratch or damage the surface of *Dohyo* will be prohibited.
- Robots cannot contain devices that spray any liquid, powder, or gas on the opponent.
- Robots cannot contain ignition devices.
- Robots cannot contain shooting or throwing devices.
- Robots cannot contain parts that fix the robot to the surface of *Dohyo* and prevent it from moving, such as suction cups, glue, etc.

## **7. Chapter V - Match Rules**

### **[Match Rules]**

#### **Article 8**

- After being called for the match, robots must be presented in the *Dohyo* area within a maximum of 3 minutes and cannot be removed until the end of the match.
- As a basic rule, the match time will be based on three rounds with 1 minute duration each, 3 minutes in total, and the team that wins two *Yuko* points first during the match time will be considered the winner.



- If only one *Yuko* point has been won by the end of the match time, the team that won the *Yuko* point will be considered the winner.
- If neither team wins a round within the match time, the winner will be decided according to Article 15 [*Yusei*].
- If the main judge cannot determine a winner through Article 15 [*Yusei*], the match time will be extended by three minutes. During the extension period, a team that receives a *Yuko* point will be considered the winner of the match.
- No mechanical maintenance, inclusion, and/or replacement of parts and batteries is allowed after the robots are presented in the *Dohyo* until the match ends; it should be noted that this does not apply to any Autonomous robot routine changes during the interval between rounds.
- No part or piece that detaches from the robot can be put back on during the match.
- The interval between rounds is at most 30 seconds.
- The robots must remain visible to the judge at all times.

## 8. Chapter VI - Round Execution

### [Safety Measures]

#### Article 9

- To ensure safety, competitors and judges must wear protective glasses, pants, gloves, and closed-toe sports shoes during the match. In addition to these, depending on specific safety measures for each event's time or location, the organization may require additional protective items.
- For Radio Controlled robots, the PCS must be placed in the designated location, operated according to the "start/stop" signals indicated by the judges, and cannot be operated outside the match time. Therefore, placing a robot positioned on the *Shikiri-Sen* using the PCS will be prohibited. Participants must have the robot promptly positioned on the *Shikiri-Sen* manually and ready for the round.

### [Round Start]

#### Article 10

- A round will start following the judges' instructions. Participants will bow in the *Dohyo Jogai* and then enter the *Dohyo Jonai*. Before the start of the match and the restart of a round, all robot settings must be promptly made within the *Dohyo Jonai*.
- When the judge indicates, the robots must be placed on the *Dohyo* at the same time. No robot should exceed the *Shikiri-Sen* and must be placed within the imaginary extension drawn from both ends of the *Shikiri-Sen* to the Tawara. Even if the robot is not completely within the imaginary extension, the positioning will be correct if any part of the robot touches the extension.

**\*\*After placing the robot, the competitor must immediately leave the *Dohyo Jonai*.**

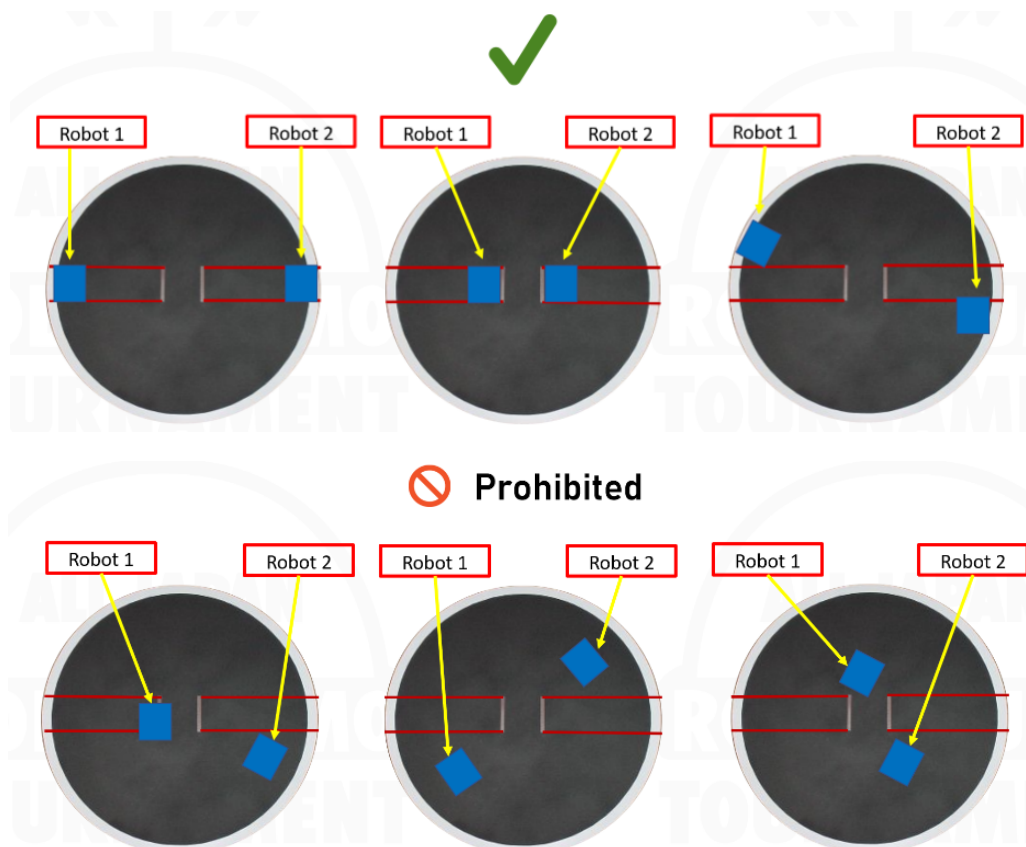


Fig.9 – Robot Positioning

- Radio Controlled robots start the match with a standard electronic sound.
- Autonomous robots start the match as follows:
  - **Mega Sumo (3kg) and Mini Sumo (500g):** With instructions from the Judge's Remote Control operated by a judge or event support team.
  - **Sumo LEGO®:** When the main judge announces the start of the round, the operator of each team will activate their robot, and after a 5-second pause, the robots must start functioning. During these 5 seconds, team members must leave the *Dohyo* area. If the robot requires any external device to start or finish the robot control program, this device must remain inside the container positioned in the Yochi.
- The Judge's Remote Control uses infrared light with the following specifications: wavelength of 950 nm, service frequency: 38-40 kHz, and any Sony brand remote control can be used for the signal. The activation process works with 3 states:
  - **Key 1:** Ready
  - **Key 2:** Start
  - **Key 3:** Stop
- The Stop state must be permanent and to restart the initialization module (Start), the operator must turn off and activate the electronic stage of their robot
- Regarding scratches and dirt on the *Dohyo*, if the judge decides that the match is possible, they will continue the match without changing the *Dohyo*.
- The two robots are placed on a *Dohyo* (fighting area), and when the judge says "**Hakke yoi Nokotta**" the robots begin to fight.

**[End of the Match]****Article 11**

- Robots must immediately stop at the signal or instruction of the judges. The Autonomous type of Mega Sumo (3kg) and Mini Sumo (500g) categories must stop immediately through the Judge's Remote Control operated by the judge (if necessary, participants can use the remote control to stop the robot from the *Dohyo Jogai*). The Sumo LEGO® type must be contained and stopped by the action of its operator.
- The match will be officially ended by the announcement of the winner made by the chief judge. The players must bow to each other.

**[Torinaoshi]****Article 12**

If one of the following situations arises, the match will be suspended, and a rematch will be held:

- Both robots are in a state of contact with each other and are unable to move, show no expressive movement, or are running on the same orbit; even after the judge counts to 3, and the situation does not change.
- Both robots simultaneously touch or touch at the same time any part outside the *Dohyo*.
- The judges decide that it is impossible to determine the winner.
- If the winner cannot be determined after the *Torinaoshi*, the chief judge may allocate the position of the robots and resume the match. In case the match does not progress, the judges may appeal to "higher" decisions.

**9. Chapter VII - Yuko point, Shinitai e Yusei****[Yuko point]****Article 13**

If any of the following situations arise, the competitor will receive a *Yuko* point:

- Their robot makes the opponent's robot touch any part outside the *Dohyo* legally.
- The opponent's robot touches any part outside the *Dohyo* for any reason.



Fig. 11 – Basic condition for Yuko point.

- Their robot has the attacking initiative and drives the opponent's robot out of the *Dohyo*, even if their robot touches any part outside the *Dohyo* first.
- The opponent's robot is judged as "*Shinitai*" according to Article 14.
- Their robot is judged as "*Yusei*" according to Article 15.
- "*Keikoku*" as defined in Article 16, is given twice to the opponent.
- The opponent is considered to have committed *Hansoku*, as defined in Article 17.

- A winner who has received *Fusensho*, as defined in Article 20, paragraph 3, will receive two *Yuko* points; if they already have one *Yuko* point, then only one *Yuko* point will be granted. The number of *Yuko* points acquired by the opponent who lost the match will remain effective.
- In the specific case of Sumo LEGO®, when the detached parts from the opponent's robot weigh 10 grams or more in total.

### [*Shinitai*]

#### Article 14

A *Yuko* point will be awarded to the competitor on behalf of *Shinitai* if:

- One or more wheels of the opponent's robot go off the edge of the *Dohyo*, and the judge counts up to 3, and it cannot return to the *Dohyo*. This condition should be considered if it persists for the specified time, with or without interference from the opponent's robot.

### [*Yusei*]

#### Article 15

A *Yuko* point will be awarded to the competitor on behalf of *Yusei* if:

- The judges decide that the competitor's robot is more predominant than the opponent's, taking into comprehensive consideration the strategy, movements, and skills of the two robots.
- The decision provided in Article 8, No. 3, is made based on the criterion defined in the preceding number.

## 10. Chapter VIII - *Hansoku e Keikoku*

### [*Keikoku*]

#### Article 16

If any of the following situations arise from a competitor, they will receive a *Keikoku*. If a competitor receives *Keikoku* twice during the match, a *Yuko* point will be granted to the opponent.

- An operator or assistant or any part of them (PCS, etc.) enters *Dohyo Jonai* during the match; however, this does not apply after the chief judge calls the end of the round.
- There is a robot movement in the *Dohyo* (extension or physical movement) before the start of the round.
- The competitor violates Article 6 (conditions for using the "Remote Control" for Autonomous-type robots).
- The robot is repositioned after being placed on the *Dohyo*, by performing incorrect positioning, manually moving the robot while setting it up, or if the operator does not position the robot quickly.
- The competitor violates Article 9, paragraph 2 (Safety Measures).
- When the player takes too much time making adjustments or any delay that exceeds 30 seconds.
- Time limits to be considered:
  - Presentation in the arena after the call: 3 minutes;

- Presentation in the *Dohyo* after inspection release for round start: 1 minute;
- Energization + strategy setup: 30 seconds.
- Time between rounds: 30 seconds.
- Any other actions that may harm the justice of the match.

### [*Hansoku*]

#### Article 17

If any of the following situations arise from a competitor, a *Yuko* point shall be awarded to the opponent or to both parties (when the cases are committed simultaneously):

- When the robot is split into two parts and the second part is movable by itself, hence two robots come out of one. The robot must remain in a single unit during the match.
- The robot does not move, stops moving, or becomes immobile on the *Dohyo*; until the judges count to 3. This condition prevails over the conditions of Articles 12 and 14.
- Both robots are moving, but no contact is made; even after the judges count to 3 and the situation does not change.
- When a participant requests to interrupt a round before it ends or when an Autonomous category participant interrupts their robot before the end of the round.
- The competitor caused the robot to start moving and the judges consider it dangerous.
- Any component of the robot becomes loose and the judges consider it dangerous or may compromise the movement of robots on the *Dohyo*.

### [*Hansoku-make*]

#### Article 18

If any of the following events arise from a competitor, they shall lose the match, by *Hansokumake*:

- The competitor does not appear on the designated *Dohyo* when called at the beginning of the match.
- The competitor commits any actions that may seriously impair the impartiality of the match, including, among others, damage, dirt, and deformations to the *Dohyo*. In regard to scratches, when the length is 20mm or more and the scratches expose the bottom of the *Dohyo*.
- The competitor violates Article 4 "Robot Specifications"; provided, however, that the terms used in Article 4, no. 8, include all terms, regardless of scale.
- The robot does not perform the movements listed in Article 5 "Conditions for movement of autonomous type robots."
- The competitor participates in the match without using protective equipment, as described in Article 9 "Safety Measures."
- Fire comes out of the robot or the judge decides that a situation similar to fire has occurred.

### [*Shikkaku*]

#### Article 19

If any of the following events occur, the competitor and their robot shall be disqualified and will no longer be part of the list of participants:

- The competitor produced the robot according to the methods listed in Article 7 "Prohibited Issues in the Design and Manufacture of Robots."
- The competitor displays unsportsmanlike behavior, including, among others, abuse or defamation of the opponent or judges and intentional surrender.
- The competitor intentionally injures the opponent.

## 11. Chapter IX - Injuries and Accidents During a Round

### [Suspension Request]

#### Article 20

- If injured due to any accident caused by the operation of the robot during a round and become unable to continue performing the match, the competitor may request the judges to suspend the match.
- In the case of the previous paragraph, the judges will promptly take appropriate measures.
- If the rematch does not take place, despite the measures provided in the previous paragraph, the remaining opponent shall be considered the winner without the match taking place.

## 12. Chapter X - Objections

### [Objections]

#### Article 21

No objection can be made against the judgment of the judges.

## 13. Chapter XI - Marking Specifications

### [East-West Direction]

#### Article 22

For the Dohyo, define the judge's right side as red and the left side as blue.

### [Robot Marking]

#### Article 23

A sticker must be affixed to each robot in a position easy to recognize by the judge, according to the definition of Article 22.

## 14. Chapter XII - Others

### [Revision or Abolition of Regulations]

#### Article 24

Revision or abolition of this regulation shall be adopted by the tournament committee president, upon deliberation by the committee in accordance with the tournament committee regulations.

## 15. Official Regulation - Appendix v.1

This appendix specifically explains all notes and cases of the Official Regulation rules, please read carefully. All notes and cases are written in order and referred to each Chapter, Article, or point number.

### Chapter II, Article 2.

[Note 1]: A participant cannot be registered and act as an operator of more than two different robots of the same weight class.

[Note 2]: A participant can be registered and act as an operator of one robot and assistant of another robot.

[Note 3]: An assistant cannot operate the robot during the tournament.

### Chapter III, Article 3, Point 5.

[Note 4]: In the Grand Final, the *Dohyo* is placed on the Hakama, so it is considered part of the *Dohyo Jonai*. However, the use of a Hakama in local and international tournaments is optional.

[Note 5]: The Hakama base measures 3.6m x 3.6m equal to *Yochi*, the top measures 2.5 m x 2.5 m, and the height measures 0.3 m. The construction material is free, but safety measures must be considered.

### Chapter IV, Article 4, Point 1.

[Note 6]: The official inspection box measurement is 205mm x 205mm.

### Chapter IV, Article 4, Point 4.

[Note 7]: The use of Bluetooth devices as PCS is not officially allowed. However, only class 1 devices of the Bluetooth protocol are allowed during the tournament. (Players must demonstrate to the team that the device is Class 1 through the datasheet).

[Note 8]: If you have any problems with the Bluetooth device, you will lose the match by the term *HansokuMake*.

[Note 9]: The use of smartphones as PCS is prohibited.

### Chapter IV, Article 4, Point 5.

[Note 10]: The Crystal topic is applicable only to Japanese players; thus, international players do not need to contemplate it.

### Chapter IV, Article 4, Point 6.

[Note 11]: The 5-second rule wait is obsolete and no longer valid except for the LEGO® category. Now, the initial movement is allowed immediately after the judge's remote control signal.



**Chapter IV, Article 4, Point 7.**

**[Note 12]:** Robots can use their own built-in start module if it works according to the official "Initial Operation of the Module." The AJRST also suggests the initial module produced by the manufacturer JSumo ([www.jsumo.com](http://www.jsumo.com)).

**[Note 13]:** The AJRST Secretariat will provide the starting modules during the Grand Final, and players can also bring their start module (built-in or JSumo).

**Chapter IV, Article 4, Point 8.**

**[Note 14]:** The term "broken" refers to a blade that is broken and separated into two or more parts, regardless of the scale of the term. This means that any part separated from the blade, regardless of its dimension, will count as *Hansoku-Make*.

**[Case 1]:** If the blade is broken but not separated into two or more parts, it will not be counted as *Hansoku-Make*. However, if the judge deems it dangerous to continue the match, the player may be asked to remove the blade, with no possibility of replacement.

**[Case 2]:** If the blade is not broken but deformed, the player may choose to keep or remove the blade. However, if the player decides to keep the blade and the blade damages or scratches the *Dohyo*, the player will lose the match by *Hansoku-Make*. However, if the referee deems it dangerous to continue the match, the player may be asked to remove the blade, with no possibility of replacement.

**[Case 3]:** If the blade detaches, falls, or flies off the robot without breaking, *Hansoku* may be applied as indicated in Chapter VIII, Article 17, point 6; depending on the judge's criteria.

**[Case 4]:** If the sharp edge of the blade is damaged, dented, or chipped, *Hansoku-Make* may be applied when the chipped area exceeds 5mm in width.

**[Note 15]:** Some robots use two blades, one on top of the other, and everything described in [Note 14] applies to any blade, regardless of whether the robot is using more than one blade.

**Chapter V, Article 8, Point 4.**

**[Note 16]:** Only the following robot configurations are allowed and not considered maintenance or repair: wheel cleaning, PCS signal check, fuse replacement, blade polishing, removal, and only removal of damaged blades, routine change in Autonomous type.

**[Note 17]:** The following robot configurations are prohibited and considered as maintenance or repair: replacement of robot parts and/or components, battery replacement, and blade replacement.

**Chapter VII, Article 13, Point 1.**

**[Note 18]:** The opponent robot that leaves the *Dohyo* first loses, considering whether the robot attacked or was attacked. In other words, the winner of the round is the robot that puts the opponent out of the *Dohyo*.

**[Case 1]:** If a robot does not move at the beginning of a round and the opponent robot touches outside the *Dohyo* alone before the judges count to 3, the *Yuko* point will be considered for the robot that remained on the *Dohyo*. **[Case 2]:** If a robot does not move at the beginning of a round and the opponent robot touches outside the *Dohyo* alone after the judges count to 3, the *Yuko* point will be considered for the robot that showed movement.

**Chapter IX, Article 20.**



[Note 19]: The assistant cannot act as the operator, even if the operator is injured, as mentioned in Article 20.

## 16. Collaborators



FUJISOFT



*Inatel*

