

## MINISUMO RC

### GENERAL DESCRIPTION

The only objective of this competition is to find and push the opponent until it is removed out of the combat area (*dohyo*). The opponent that aims it o the last one to leave will be the winner of the competition. The competition style is autonomous vs autonomous.

### ROBOT TECHNICAL CHARACTERISTICS

As its name indicates this competition is the version sumo combat between two robots in which the weight and dimensions are reduced so that they must have a new approach a new focus in their designs.

As definition, the robot must follow these requirements which are listed below:

1. The robot must have these dimensions depending on the category tat we are listing below:
  - a. Minisumo
  - b. Wide (cm): 10, length (cm) 10
  - c. Wide(cm): free, Max Weight (g): 500
2. For each category de Minisumo Autonomous, the robot can expand itself in size after the competition has started, but cannot be physical separated into other parts, it must remain a whole centralized piece. The robots that violent these restrictions will lose the competition. If screws, nuts, or other parts of the robot fall down into a minor of 5 grams' total weight. This does not cause the loose of the competition.
3. The robot must design to have a face and a back, this situation must be indicated by the team in the HOMOLOGATION phase in front of the evaluation committee.
4. The duration of the batteries must be strong enough to last the whole competition until the end. The organization committee will not guarantee time between competitions turns to charge batteries.
5. Robots cannot damage the game playground.
6. The microprocessor and / or robot's development card can be from any manufacturer and any memory size can be accepted. This category will not use lego *kits*.

7. Robots must be designed in order to activate the safety mechanism to stop the engines through the radio control
8. Robots can be turned on manually or through a wireless command: only for the category AUTONOMOUS MINISUMO, is mandatory to use a remote shut off. The robots will be design in a way that in its structure there is a light indicator that signs that they are ready to use.
9. Totally forbidden robots to carry adhesives or suction cups and any other system that allows subjection of the robot *dohyo*
10. The command robot type: autonomous so that, once they are turned on, they will operate with the external operator intervention.

## CHARACTERISTICS OF THE WORK AREA

It is understood as a combat area, the play pallet and a reserved space around the ring. Any space out of the combat area will be called EXTERIOR AREA or OUT OF THE GAME.

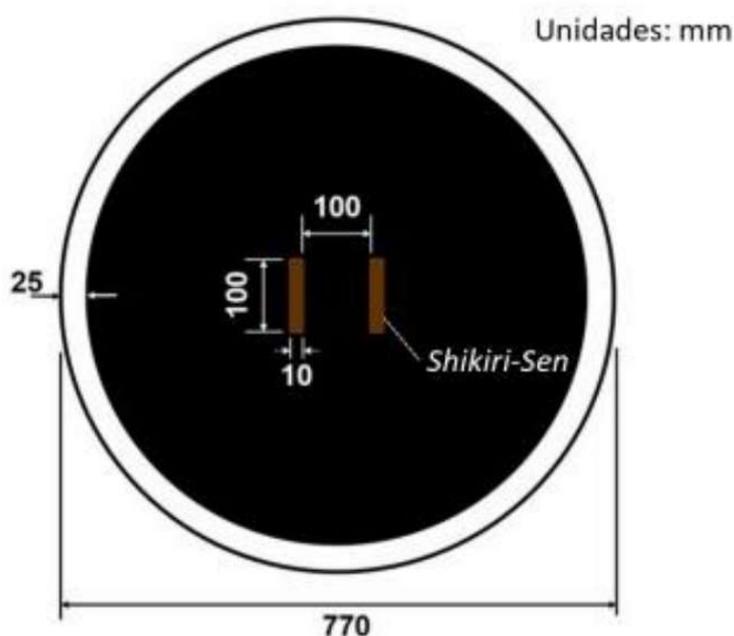


Figure 1: Specifications *dohyo*

The specifications for the dohyo in Minisumo category are:

## MINISUMO

Diameter: 770 mm

Height: > 15 mm

Edge width: 25 mm

Material: wood

As a safety precaution it will be 1 meter around the *dohyo*, and it will be empty from any kind of obstacle while the competitions. This space can be any color except white.

## HOMOLOGATION

1. Robot design specifications will be checked as for the robot design to fulfill satisfactorily.
2. A test will be performed in which they robot can take out an object from the combat area (square box as the same size or taller than the robot).
3. Safety time will be measured.
4. We will check that robot does not have any adhesive material or suction cups or any other prohibit elements in the structure of the robot.
5. We will check that the robot won't damage the *dohyo*
6. *At any moment of the competition the judges can ask to pass all these homologation guidelines at any doubt of any modification of the robot.*

## COMPETITION DEVELOPMENT

1. While the realization of the first competition the next competitors must showed up two minutes earlier before the initiation of their participation.
2. In the case of one of the teams won't show up or appear we will proceed to call them up by public address via and just in case they do not show up one minute after the last call, the rival team will be declared winners.
3. The combats will consist in two rounds (2), with a time frame of (3) minutes each. Between rounds it will be two (2) minutes max.
4. The robot with more points in the two (2) rounds total will be declared winner YUKO, (a victory in each round equals a point) in case of a tie it will proceed a third round.

5. If the tie continues the referees will decide who is the winner following the next criteria.
  - a. Against violations
  - b. Technical merits in the movements y the operational movements from the robot (fight attitude from the robot).
  - c. Sport's attitude while the competition
  
6. The evaluations of these parameters will be at the jury's criteria.

## COLLOCATION OF THE ROBOT

After the judge instructions are heard, the two teams will come to the combat area to collocate or place their robots in the *dohyo*. *A cross in the middle of the sumo ring will divide (4) squares. The robots always be placed in opposite quadrants.* The robots must be placed in borderline (at least inside the assigned quadrant, (look at picture 2). After the positioning, the judge will take away the cross, and therefore, the robots cannot move anymore.

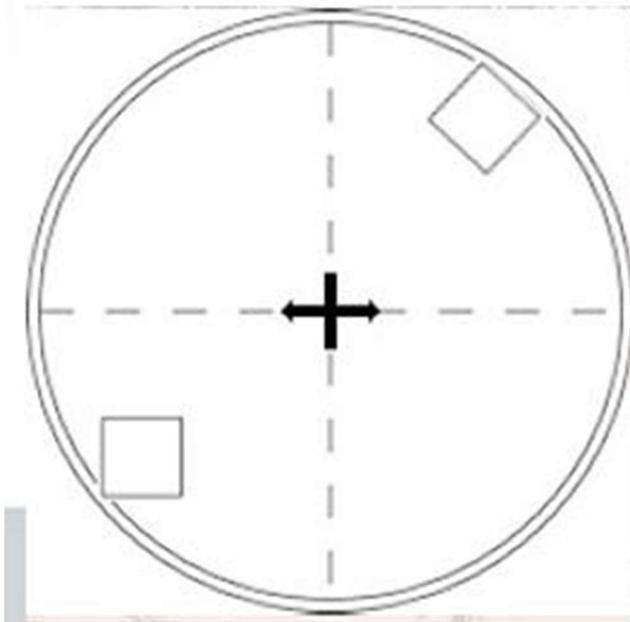


Figure 2 Positioning

## COMBAT INITIATION

1. The judge will start each turn with a start signal. As soon as the robots receive the start signal, the round will start immediately and the robots will activate only using a switch or wireless control. The robots will not move until (5) seconds passed (safety time), the Combat time will start at this moment.
2. Only the people that are responsible of the robots will enter the combat zone or area at all time of the combat (included the time between rounds).
3. Following the judges' instructions. Only the representatives of each team will enter the combat area and place the robot immediate behind the line.
4. The rest of the team will keep themselves out of the exterior area or out of the game.

## STOP AND RE START OF THE COMBAT

The contest only can be stopped or re starts when the judge indicates or tells so

The combats will stop and re starts under the following conditions:

1. If robots are tangled or orbiting between each other with no perceptible progress within 30 seconds.
2. When both robots do not move, without commuting or shifting (exactly at the same time) y remain stopped within 30 seconds without touching each other. However, if the robots stops for 30 seconds it will be declared as a "Do not have will to fight", and in this case the opponent will gain one point Yuko, when and only keeps moving.
3. If robots touch the exterior, part of dohyo at the same time and do not determine who touched it first.

Each participant has the right to ask five minutes between each competition, just in case the robot suffers a malfunction.

When a judge ends the combat. The two responsible of the team will retire the robots out of the combat area.

When the combat already has finished, the combat will start immediately from the start position. The pause will not be counted as a combat time.

## END OF THE COMBAT

The combat will finish when the judge indicates so. Only at this moment, the two teams will retire their robots from the combat area opposite case; the opponent team will receive a point Yuko.

## TIME BETWEEN ROUNDS

1. If one team takes more than one minute in place in the *dohyo*, his robot between rounds, the representative of the team can ask the judge five (5) minutes between a pause and the judge will decide if he grants it or not.
2. If the pause is not granted, this will be considered a violation.
3. In case in not asking for the pause or if this lapse of time conceded beats the time pause, this will be considered a penalization and the round will be lost.

## YUKO POINTS

The YUKO point will be granted when:

- a. The opponent robot stands still inside the *dohyo*
- b. The opponent robot touches the space out of the *dohyo*

Two points *Yuko* will be directly granted, if the opponent is penalized or commits two violations in the same combat.

## VIOLATIONS TO THE REGULATIONS

### As it follows

1. Enter into the combat area without previous judge authorization.
2. Unjustified petition to stop the combat.
3. Take more than 30 seconds to re start the combat after an interruption. requested by a judge.
4. Activate the robot before the referee requested.
5. Entrance of one of non-permitted member into the combat area.
6. Act in inappropriate way so that attacks the integrity of the combat and/or the organization.

## PENALIZATIONS

It will be considered a penalization (implies the combat lose)

1. Do not respect the (5) seconds for safety time.
2. The separation into different pieces from the robot once the competition has started more than a 5 g.
3. The no presence of a robot one minute after the last call in the combat.
4. Provokes mal function in the game area and in the opponent robot.
5. Robots that throw liquid, dust, gas, or solids to the opponent.
6. Insult the judge or to the opponents, or place words that show insults to the robot or the team.
7. Once the robot is homologized no changes can be introduced.

8. Put in danger at any stage the integrity of the participants, judges and / or the public.
9. To use sticky substances to improve the traction of the robots. The tires and other components from the robot in contact with the ring cannot have the capacity of holding an A 4 paper (standard size) for no longer than 5 seconds.

## **PETITION TO STOP THE GAME.**

1. A team member can ask to stop the game if the robot has suffered an accident so the game cannot continue.
2. Once time per combat maximum two times while the competition.
3. The pause will be just for five (5) minutes.
4. The judge will have the last word whether he concedes or not the interruption of the game.

## **IMPOSSIBILITY TO CONTINUE THE GAME**

1. If the robot has suffered an accident cannot continue the game and the team who causes the accident will lose the game.
2. When it is unclear who or what was the cause, the team that cannot continue with the game or who has asked to stop it will be declared loser.
3. Objections might be presented by the team mates to the judge or to the coordinator on the competition before the game is over, if there is any doubt regarding the compliance of the rules.
4. The judges have the power to stop the combat at any moment and for any cause. the combat will start at the time and the way judge's order.

## **EXPELLED FROM THE GAME**

The judges will reserve the right to suspend from the competition the team that awards and deserves it. The expelled team has the right to go to the coordinator with the sanction who will dictate a definite and an unappeasable sanction. At any moment, at any place (competitor's area, main floor) at any action that goes against the contest, the organization, or against the participants can cause the immediate suspension. At any doubt, the judges will have the last word.

## **JUDGES**

- I. The image of the judge in the competition is very important, he will be the person in charge of the rules and laws established that are compiled by the organization committee.

- II. The judges for this competition will be designed by the organization committee. The participants can present the objections to the judge in charge of the category before the game is over.
- III. The judge will have the last word in case at any doubt in the application of the rules.
- IV. If happens to be a controversial issue towards any decision form the judge. A written complaint can be presented towards the Judges counseling, once the competition is finished, they will evaluate the presented arguments and then a decision will be taken to this respect. And this decision is unappeasable.