MRC GHANA 2027
TECHNICAL INSPECTION CHECKLIST

Technical Inspection Checklist

What is checked before your robot competes

19–20 February 2027 · Accra, Ghana · Venue to be announced

Check against the current official rules
Every robot passes a technical inspection before it competes. This checklist summarises the equipment and safety requirements in the official H.E.R.O. rules. The rules take precedence, and the organisers will confirm inspection arrangements in the programme.

Tick each item as you build, then bring a printed copy to the competition.

Drones

Robot and equipment

- ☐ Remote-controlled flight only — autonomous flight is not permitted. Wireless links may be used for flight control only.
- ☐ Maximum size 25 × 25 cm including propeller guards and anything mounted on the drone.
- ☐ Maximum all-up weight 300 g, including battery, guards and camera.
- ☐ Plastic propellers with guards around the full perimeter. No sharp parts.
- ☐ 1S or 2S LiPo/LiHV batteries only; teams may bring up to two packs.
- ☐ Indoor micro-class drones. The official page lists examples of accepted and not-accepted models — check it before buying. Models not listed need organiser pre-approval at least 7 days before the event.
- ☐ At inspection the drone must hold a flight height of 1–2 m without the pilot controlling altitude, and must be able to cut power instantly (kill switch).

Safety

- ☐ The pilot must wear protective goggles.
- ☐ Propeller guards, battery condition, the 2 m height limit and the kill switch are all checked at technical inspection.

- [ ] Missing the technical inspection slot means automatic exclusion.
- [ ] Rule ZERO applies: if you are not sure something is allowed, assume it is not and ask the organisers.

Official rules: https://www.he-ro.gr/mrc-drones

Drone Soccer 3×3

Robot and equipment

- [ ] Only the drone-ball model specified by the organisers may be used, without modification to the drone, controller or motors.
- [ ] Remote-controlled operation.
- [ ] LEDs that can show at least red and blue, so each alliance flies in its own colour.
- [ ] Maximum size 20 × 20 × 18 cm (±1 cm) and maximum weight 140 g.
- [ ] At least one spare battery.

Safety

- [ ] Matches are flown inside a fully netted arena.
- [ ] Deliberately trying to damage an opponent's drone results in a red card and ejection.
- [ ] Drone balls and controllers are checked at an initial technical inspection; failing it means disqualification.
- [ ] Rule ZERO applies: if you are not sure something is allowed, assume it is not and ask the organisers.

Official rules: https://www.he-ro.gr/drone-soccer

Marathon

Robot and equipment

- [ ] Fully autonomous robot with a start/stop button. In Advanced, a controller may be used only to start the robot.
- [ ] Maximum footprint 25 × 25 cm, maximum weight 1 kg, height between 5 cm and 15 cm.
- [ ] Basic: an educational kit with its official controller (for example LEGO, VEX, mBot and similar), up to 1 controller, 4 motors and 4 sensors, no external microcontrollers and no 3D-printed or modified parts.
- [ ] Advanced: custom electronics (e.g. Arduino, ESP32, Raspberry Pi), custom PCBs, separate batteries and 3D-printed or machined parts are allowed.
- [ ] Banned in all divisions: pneumatics, pullback motors, gas canisters, circuits above 24 V nominal, sticky wheels and suction devices.

Safety

- [ ] No circuit may exceed 24 V nominal.
- [ ] No gases, pneumatics or parts that could injure people or damage the track.
- [ ] Rule ZERO applies: if you are not sure something is allowed, assume it is not and ask the organisers.

Official rules: https://www.he-ro.gr/mrc-marathon

Football 3×3

Robot and equipment

- [ ] Remote-controlled robot (remote or app). Venue Wi-Fi is not available to teams.
- [ ] Maximum footprint 20 × 20 cm, weight 700–800 g, height up to 15 cm.
- [ ] A motor-driven kicking mechanism that stays within 20 × 20 cm when fully extended.
- [ ] Up to 4 motors and a single controller, plus a start/stop button.
- [ ] Ball: LEGO Mindstorms ball, 52 mm diameter.
- [ ] No holding or carrying the ball; banned items include pneumatics, glue, suction and deliberately detachable parts.

Safety

- [ ] Deliberately trying to damage an opponent results in a red card.
- [ ] Technicians may not touch robots during play without the referee's permission.
- [ ] Rule ZERO applies: if you are not sure something is allowed, assume it is not and ask the organisers.

Official rules: https://www.he-ro.gr/mrc-soccer

Shooting

Robot and equipment

- [ ] Home-made launcher from cardboard, light plastic, 3D-printed parts, light laser-cut wood or kit parts. No metal launchers and no ready-made toy launchers or their shells.
- [ ] Maximum size 25 × 25 cm and maximum mass 500 g.
- [ ] Must include a hub or microcontroller and a button or pressure sensor that triggers the shot, firing one dart at a time.
- [ ] Must be programmed to beep one second before firing.
- [ ] Shape and design rules apply (single grip, trigger, forward-facing outlet, rounded corners). Read the official page carefully before building.
- [ ] Standard unmodified foam darts. Referees may supply their own darts.

Safety

- [ ] Safety glasses and protective equipment are mandatory on the field — teams without them are disqualified.
- [ ] No propellant gases, chemicals, pneumatics or anything added to increase force.
- [ ] Darts must not be modified. Unsafe aiming or darts leaving the field stop the attempt.
- [ ] Teams travelling by air should pack the launcher disassembled.

Official rules: https://www.he-ro.gr/mrc-shooting

Archery

Robot and equipment

- [ ] Autonomous robot: it fires by itself five seconds after the start button is pressed and adjusts its own aim height.
- [ ] The bow must be held vertically like an archer's bow, not horizontally like a crossbow.
- [ ] Maximum 25 × 25 cm footprint and 800 g. Robot plus fully drawn arrow no longer than 30 cm in the shooting direction.
- [ ] Up to 1 controller, 4 motors and 4 sensors.
- [ ] Rubber bands up to 4 mm wide.
- [ ] Arrow made by the team, under 30 g, with a rounded, non-sharp tip.

Safety

- [ ] Safety glasses and protective equipment are mandatory — teams without them are disqualified.
- [ ] Arrows must have rounded, non-sharp tips.
- [ ] The Technician steps back during the five-second start delay.
- [ ] No remote control, wireless links, pneumatics or parts that could cause harm.

Official rules: https://www.he-ro.gr/mrc-archery

Exhibition

> **Rules awaiting publication**
> Detailed equipment and inspection requirements for this sport will be added once H.E.R.O. publishes and the organisers confirm them.

Official rules: https://www.he-ro.gr/mrc-exhibition

Before you leave for the venue

- [ ] Robot or drone, controller and any tools you need for repairs
- [ ] Charged batteries, chargers and safe battery storage
- [ ] Protective eyewear, where your sport requires it
- [ ] This checklist and your team’s registration confirmation