

ROBOFIGHT INTERNATIONAL CHAMPIONSHIP

RoboFight International Championship 2027 — Official Rulebook

30 kg Standard Combat Class

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This document defines the official regulations governing team composition, robot specifications, judging criteria, safety requirements, match procedures, and officiating for the RoboFight International Championship 2027.

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1. INTRODUCTION

RoboFight International 2027 is a global combat robotics championship designed to evaluate teams across four interconnected dimensions: **engineering quality**, **arena performance**, **safety compliance**, and **strategic execution**. The competition integrates a rigorous design evaluation, fabrication standards, and real combat performance into a single ranked tournament.

This rulebook is the authoritative reference for all teams, judges, referees, and officials. It is binding on every participant and supersedes any prior or informal guidance. Where any ambiguity arises, the head referee and the technical committee have final interpretive authority.

CORE PRINCIPLES

Safety first. No match, no design, and no decision overrides safety.

Engineering integrity. Robots must be realistic, manufacturable, and durable — not theoretical.

Fair competition. Identical rules and scoring criteria apply to every team.

Transparent judging. Every score is traceable to a defined criterion.

Teams are responsible for understanding every section of this document before registration. Submission of a team entry constitutes acceptance of all rules below.

2. TEAM REGULATIONS

Each team is an organized unit responsible for the complete lifecycle of one combat robot — from design submission through arena combat. Roles must be clearly assigned and disclosed at registration.

TEAM COMPOSITION

ROLE	COUNT	NOTES
Active Members	2 – 5	Includes Team Leader, Driver, Engineers, and Pit Support.
Supervisor (optional)	0 – 1	Does not count toward the 5-member active limit.
Total maximum	6	5 active + 1 supervisor.

REQUIRED ROLES

Team Leader (required): Primary point of contact for organizers; responsible for safety compliance, communication, and submitting documentation.

Driver / Operator: Pilots the robot during every arena match.

Engineers & Pit Support: Mechanical, electrical, and software roles. Only active members may perform repairs.

SUPERVISOR RESTRICTIONS

A supervisor (e.g., a faculty advisor or mentor) may attend the event and provide guidance outside of matches. The supervisor is **strictly forbidden** from:

- Entering the competition arena at any time.
- Operating, driving, or directly handling the robot.
- Assisting during the repair window between matches.

Violation of supervisor restrictions results in immediate match forfeit and may escalate to team disqualification at the discretion of the organizing committee.

3. COMPETITION STRUCTURE

The championship runs in three sequential phases. Each phase is a gate — teams must satisfy its requirements before progressing to the next.

PHASE 1 — DESIGN

Teams submit a complete technical package including CAD models, electrical diagrams, weapon system explanation, safety plan, and materials list. Submissions are scored out of 100 points across seven criteria (see Section 11). Top-scoring teams advance.

PHASE 2 — FABRICATION

Selected teams build their robots in accordance with the approved design. Realistic manufacturability, structural durability, and serviceability are enforced. A mandatory safety inspection is conducted before any robot is permitted into the arena.

PHASE 3 — ARENA

Live combat. 1 vs 1 matches, three minutes per round, judged on damage, aggression, control, weapon use, and durability. Wins by KO, TKO, or judges' decision determine progression through bracket-based elimination, ending in the Championship Final.

Failure or disqualification in any phase prevents progression to the next. Teams may not skip a phase under any circumstance.

4. ROBOT SPECIFICATIONS

The 30 kg Standard Combat Class is the only class for the 2027 championship. Strict adherence to the specifications below is mandatory.

DIMENSIONS

- Maximum size: 80 × 80 × 80 cm.
- Measured in the robot's starting configuration (un-deployed).
- Expandable mechanisms (e.g., flippers, lifters) may extend beyond these limits only after the match has begun.

WEIGHT

CONDITION	WEIGHT	RESULT
Within limit	≤ 30 kg	Approved.
Tolerance zone	30 – 33 kg	Permitted with judging penalty applied.
Over limit	≥ 33 kg	Disqualified.

CONTROL SYSTEM

- Robots must be remote-controlled via RF, 2.4 GHz, Wi-Fi, or Bluetooth.
- The driver must maintain active control at all times during a match.
- Fully autonomous combat is not permitted in this class.

5. CORE SAFETY REQUIREMENTS

Every robot must implement the following safety systems. Failure of any single requirement results in immediate disqualification from the inspection.

MANDATORY KILL SWITCH SYSTEM

Primary Kill Switch: An external, physical switch that instantly cuts all power to the robot. Must be clearly labeled and accessible from outside the chassis without disassembly.

Secondary Kill System: A remote shutdown or isolation system that can be triggered by the driver or marshal in the event the primary switch is unreachable.

Both systems must **simultaneously disable** drive motors, weapon systems, and any flame system.

Absence or failure of the kill switch is treated as a critical safety violation and results in immediate disqualification.

BATTERY & POWER

Batteries must be enclosed in a rigid, secure compartment with no exposed terminals.

LiPo packs require visible chemistry/voltage labeling and a balance lead accessible for inspection.

Charging is permitted only in designated pit areas using approved chargers.

WEAPON LOCK

A removable, mechanical weapon lock must immobilize spinners, hammers, or any energy-storing weapon outside the arena.

The lock is removed only inside the arena, immediately before the match starts.

SAFE STARTUP & SHUTDOWN

Teams must demonstrate a documented startup sequence (lock removed last, weapons armed last) and a shutdown sequence (weapons disarmed first, then drive, then power) during inspection. Marshals may request a re-demonstration at any time.

6. ALLOWED & PROHIBITED SYSTEMS

ALLOWED SYSTEMS

Electric drive systems (DC, BLDC, geared).

Mechanical weapons: spinners, hammers, flippers, lifters, wedges, axes.

Pneumatic systems within rated pressure limits.

Controlled flame systems compliant with Section 7.

Mechanical clamps and grippers (non-entangling).

PROHIBITED SYSTEMS

Explosives, pyrotechnics, or combustion engines.

Projectiles, tethered or untethered.

Liquid weapons, foams, or sprayed substances.

Entanglement devices (nets, cables, glue).

Signal jamming or interference equipment.

Electrical discharge weapons (Tesla coils, stun systems).

Fully autonomous combat behaviour.

INSPECTION OUTCOME

Any prohibited system discovered during inspection or in the arena results in immediate disqualification from the current match and may extend to the entire tournament at the committee's discretion.

7. FLAME SYSTEM REGULATIONS

Flame systems are permitted only when they meet every requirement below. Any deviation removes the right to use flame in the championship.

FUEL

- Only butane or propane in small, sealed, manufacturer-rated tanks.
- Liquid fuels (gasoline, kerosene, alcohol) are strictly prohibited.
- Tanks must be enclosed in a heat-isolated compartment, away from batteries and electronics.

OPERATIONAL LIMITS

PARAMETER	LIMIT
Maximum continuous flame	5 seconds per burst
Maximum effective range	1 metre
Direction	Single, fixed, directional nozzle
Activation	Driver-controlled, momentary trigger only

MANDATORY SAFETY SYSTEMS

- Dual shutoff:** A primary mechanical valve plus an independent electronic cutoff.
- Flame lock:** A physical lock that prevents accidental ignition outside the arena.
- Independent ignition control:** Ignition must be electrically isolated from the main control loop and tied to the kill switch.

Strictly prohibited: liquid fuel spraying, explosive ignition methods, continuous (uninterrupted) flames, and flame use against arena walls or personnel.

8. DESIGN & MANUFACTURING REQUIREMENTS

The design submission package is the foundation of the team's score in Phase 1 and the contract against which the fabricated robot is inspected in Phase 2.

REQUIRED SUBMISSION ITEMS

CAD design & technical drawings: 3D model and 2D drawings sufficient to manufacture the robot.

Electrical diagram: Power, control, and signal paths with component ratings.

Weapon system explanation: Operating principle, energy source, expected impact behaviour.

Safety plan: Kill switch architecture, weapon lock, battery management, fire mitigation.

Materials list (BOM): Components, alloys, and suppliers, with realistic costs.

Estimated final weight: Including a margin for fasteners and wiring.

MANUFACTURABILITY STANDARDS

Materials must be commercially available; exotic or unjustified specs are penalised.

The build sequence must be realistic: every part must be physically accessible during assembly.

The robot must be repairable within the 7-minute repair window without specialist tools.

Critical fasteners and connectors must be inspectable without disassembly.

Incomplete or unrealistic submissions are penalised even when the underlying concept is strong. Documentation quality is part of the score.

9. MATCH RULES

FORMAT

- 1 vs 1 robot combat — only one robot advances from each match.
- One round per match.
- Round duration: a maximum of **3 minutes** of uninterrupted combat.

VICTORY CONDITIONS

CONDITION	DEFINITION
Knockout (KO)	The opposing robot fails to show controlled movement for 10 consecutive seconds.
Technical KO (TKO)	A critical mechanical, electrical, or safety failure prevents the opposing robot from continuing combat.
Tap Out	The driver may surrender the match at any time.
Judges' Decision	If both robots survive the full round, the winner is decided by Damage, Aggression, Control, Weapon Use, and Durability (see Section 12).

MATCH EXTENSION

If the result is unclear at the end of three minutes, the head referee may grant a single extension of up to one minute. The extension uses the same scoring criteria and ends as soon as a clear winner is established.

10. REPAIR RULES

Between matches, every team is granted a structured repair window. The window is designed to allow recovery from arena damage without unfairly extending the schedule.

REPAIR WINDOW

Maximum duration: 7 minutes between consecutive matches.

The clock starts when the robot leaves the arena and stops when the team confirms readiness for inspection.

Failure to be ready at the end of the window forfeits the next match.

PERMITTED ACTIVITIES

Replacement of damaged components with pre-prepared spares.

Re-tightening of fasteners, re-seating of wiring and connectors.

Battery swap with a fully inspected and labelled spare.

Software adjustments and parameter changes.

RESTRICTIONS

Only registered active team members may perform repairs.

Supervisors may **not** participate in any way during the repair window.

Any structural change must remain within the limits of the approved design.

A robot returning from repair must pass the same safety inspection as a fresh entry before it is permitted into the arena.

11. DESIGN PHASE JUDGING — 100 POINTS

Design submissions are scored against seven defined criteria. Each criterion has a fixed maximum and explicit guidance for what judges look for.

CRITERION	PTS	WHAT JUDGES LOOK FOR
Concept Quality & Combat Strategy	15	Clear combat identity, well-justified design choices, and a fight strategy that matches the robot's form and weapon.
Mechanical Design Quality	20	Chassis logic, weight distribution, armour strategy, durability under repeated impact, and serviceability of internal modules.
Weapon System Design	15	Realistic weapon energy, mounting integrity, controllable activation, and combat effectiveness against likely opponents.
Electrical & Control System	15	Power distribution, motor controllers, fail-safes, fusing, and clean separation between high-current power and signal lines.
Safety Engineering	15	Weapon lock, battery containment, accessible E-stop, documented arming sequence, and a safe shutdown procedure.
Feasibility & Manufacturability	10	Realistic materials, sensible build sequence, and a robot that can actually be assembled, repaired, and inspected.
Innovation & Originality	10	Creative systems integration or novel mechanical ideas that deliver real, measurable competitive benefit.
Total	100	Required minimum for advancement to fabrication is set per season.

Design tie-breaker: If two teams tie for the final qualifying spot, the Mechanical Design score is the first tie-breaker. If still tied, Safety Engineering applies, then Innovation.

12. ARENA PHASE JUDGING — 100 POINTS

Arena scoring evaluates what actually happens in the match. Judges score independently using the definitions below, then totals are combined to determine the winner when no KO or TKO occurs.

CRITERION	PTS	DEFINITION
Damage	30	Functional damage inflicted on the opponent: loss of mobility, weapon failure, structural failure, or visible mechanical degradation. Cosmetic damage does not score.
Aggression	25	Initiating attacks, pursuing the opponent, and consistently pressing the engagement throughout the round.
Control	20	Precise movement, intentional positioning, stability under impact, and ability to dictate the geometry of the fight.
Weapon Use / Effectiveness	15	Active deployment of the weapon at appropriate moments, with measurable impact on the opponent.
Durability	10	The robot's ability to absorb impacts and continue operating effectively to the end of the round.
Total	100	Awarded per judge; the highest combined total wins the round.

SPECIAL QUALIFICATION RULE

If both robots fail to operate or fail to engage during the round, the team with the higher combined judging score automatically advances to the next stage.

13. TIE-BREAKING RULES

When the combined arena score produces a tie, the following criteria are applied sequentially until one team has a higher value.

1. **Damage** — the team that inflicted more functional damage wins.
2. **Aggression** — if still tied, the more aggressive team wins.
3. **Control** — if still tied, the team with greater arena control wins.
4. **Head Judge Decision** — if all three remain tied, the head judge issues a final, binding decision.

DESIGN PHASE TIE-BREAKER

See Section 11. The order is: Mechanical Design → Safety Engineering → Innovation.

The head judge's decision is final and not subject to protest under any condition.

14. JUDGE CONSISTENCY RULES

Scoring consistency is enforced to ensure that every team is evaluated against the same standard, regardless of which judge is observing.

Every judge scores independently. No discussion or comparison is permitted during a match.

Scores must be tied directly to the published definitions in Sections 11 and 12.

Visual presentation, paint, branding, and audience reaction must not influence scores.

Judges are required to record short justifications for any score above 80% or below 30% of a criterion's maximum.

The head judge is responsible for moderating any extreme outliers.

JUDGE CONFLICTS OF INTEREST

Any judge with a personal, professional, or institutional connection to a competing team must declare it before the tournament. The head judge will reassign matches accordingly.

15. PENALTIES

Penalties are applied to discourage unsafe design, passive behaviour, and rule violations. Penalties scale with severity.

TYPE	EFFECT
Weight tolerance (30 – 33 kg)	Fixed deduction from the total arena score.
Passive / non-engaging behaviour	Warnings followed by deduction from Aggression and Control.
Pinning beyond 10 seconds (no damage)	Warning, then point deduction, then forfeit on the third occurrence.
False start (no contact)	Restart with first warning.
False start (with contact)	Two warnings issued.
False start (major damage caused)	Immediate match loss.
Safety violation in design or arena	Disqualification from the match or tournament.

16. MATCH STOPPAGES & OFFICIATING

The referee has full authority to halt or end any match. The conditions below are definitive — every team and judge must understand them.

SAFETY & CRITICAL STOPPAGES

Fire Hazard: A robot catches fire and poses a risk to the arena or personnel.

Unsafe Weapon: A weapon mechanism fails or becomes dangerously unstable.

Immobilization (KO): A robot cannot show controlled movement for 10 consecutive seconds.

Arena Damage: Walls, floor, or guarding sustain damage that compromises safety.

Failure to Stop: A robot fails to power down after the match ends — judged a critical safety failure and may result in disqualification.

Safety Exclusion: The inspection or judging committee may exclude any team for safety violations in the design or in the arena.

IN-MATCH RULES

Unstick Request: Each team is granted one unstick. If a robot is stuck in a corner for 30 seconds, the match pauses, the robot is reset to its starting point, and time resumes.

Pinning: Holding the opponent immobile (without inflicting damage) for more than 10 seconds earns a warning. Repeats deduct Control or Attack points. A third offence forfeits the match.

False Start: Movement before the start signal — no contact: restart with warning; contact made: two warnings; major damage caused: immediate loss.

Entanglement: If both robots become locked together and immobile for 30 seconds, the match is paused, the robots are manually separated, and play resumes from the starting positions.

No In-Match Repairs: Modifying, repairing, or maintaining the robot during a live match is strictly prohibited.

OFFICIATING & PROTESTS

Functional Check: Referees may ask teams to demonstrate movement and weapon operation before and after the match to accurately assess damage.

Starting Positions: The referee assigns starting corners by draw or bracket order, unless both teams agree otherwise.

Protest Protocol: No protests within the first minute after a result is announced. Protests must be filed by the team leader to the head referee or organizing committee — never directly to match referees. No protests are accepted after the round ends.

17. ARENA SAFETY RULES

Safety inside and around the arena is the highest priority. The following rules apply at all times.

The arena is enclosed by impact-rated guarding sufficient for the weapon class.

Only the assigned drivers, referees, and authorised marshals may enter the controlled arena zone during a match.

Spectators must remain behind designated lines at all times.

A fire team is on standby for any match involving flame systems.

The referee may stop a match instantly for any perceived safety threat — no justification is required at the moment of stoppage.

After every match, robots must be confirmed powered-down and weapon-locked before any team member approaches.

Any team member who breaches the controlled zone during a live match may be ejected from the venue and the team may be disqualified.

18. GLOBAL EVENT STANDARDS

The championship maintains operational standards consistent with international combat robotics events.

Designated safety marshals are present in all pit areas and at the arena.

A trained fire response team is on standby whenever flame systems are in use.

A pre-match safety inspection is mandatory before every single match — no exceptions.

Pit access is controlled. Only registered team members and accredited officials may enter.

All teams must comply with venue and local regulatory requirements (electrical, fire, environmental).

Conduct codes apply to every team member: harassment, unsafe behaviour, or sabotage results in immediate ejection.

DOCUMENTATION & RECORD KEEPING

Match results, judge scores, penalties, and inspection outcomes are recorded for every match. Teams may request their own scores after the tournament concludes.

19. FREQUENTLY ASKED QUESTIONS

CAN OUR ROBOT EXCEED THE 30 KG WEIGHT LIMIT?

Yes, up to 33 kg, with a fixed judging penalty applied. Anything at or above 33 kg is disqualified.

ARE FLAME WEAPONS ALLOWED?

Yes, under the strict regulations in Section 7 — butane or propane only, 5-second maximum bursts, 1 m maximum range, with dual shutoff and flame lock.

CAN OUR SUPERVISOR HELP IN THE PIT DURING REPAIRS?

No. Supervisors may advise outside matches but cannot enter the arena, operate the robot, or assist during the repair window. Only registered active members may perform repairs.

CAN WE REPAIR THE ROBOT BETWEEN MATCHES?

Yes. Each team is granted up to 7 minutes of repair time between matches. The robot must pass safety inspection again before re-entering the arena.

WHAT HAPPENS IF BOTH ROBOTS STOP OR FAIL TO ENGAGE?

The team with the higher combined judging score advances. If still tied, the tie-break sequence in Section 13 is applied.

IS FULLY AUTONOMOUS COMBAT PERMITTED?

No. The driver must maintain active control at all times during a match.

CAN WE FILE A PROTEST AGAINST A JUDGE'S DECISION?

Protests may be filed by the team leader to the head referee within a defined window (see Section 16). The head judge's decision is final.

20. FINAL STATEMENT

The RoboFight International Championship 2027 is designed to eliminate ambiguity, ensure fairness, enforce safety, and reward engineering excellence. Every section of this rulebook exists for a reason and is enforced uniformly across all teams.

Teams are expected to compete with discipline, sportsmanship, and respect for the opponents, the officials, and the venue. Robotics combat is a serious engineering discipline — the championship treats it as such.

ROBOFIGHT 2027

**ONLY ONE
WILL STAND**

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