

Global ROTAX MAX Challenge

E10 Technical Regulation 2027

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Version 1

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1. GENERAL

These RMC E10 Technical Regulations 2027 are an extension to the RMC Technical Regulations 2027.

Anything which is not expressly allowed in the technical regulations is forbidden.

The English language is the authentic version.

1.1 CATEGORIES

Karts used in the ROTAX MAX Challenge (**RMC**), are divided into the following classes:

- ROTAX E10 Bambini
 - Power output of the electric motor 5 KW
 - (Target lap time +0.7 seconds to ROTAX Micro MAX)

For the ROTAX E10 bambini, the power train can be used with either one or two battery packs installed and connected. The output power remains the same, only with increased autonomy.

- ROTAX E10 Mini
 - Power output of the electric motor 10.5 KW
 - (Target lap time similar to ROTAX Mini MAX)

For the ROTAX E10 Mini, the power train can only be used with two battery packs installed and connected.

Note :

The only technical difference between the ROTAX E10 powertrain used for the Bambini and Mini categories is the power setting as defined by the DESS Key used by the competitor.

It is the competitor's responsibility to always use the correctly nominated DESS Key and power setting during the event.

The power settings can be verified at any time during an event by ROTAX, Event staff or the Chief Scrutineer using the ROTAX BUDS calibration analysis software and adapter.

Approved power setting / DESS Keys per categories will be defined in a technical bulletin for the event / series.

1.2 AMOUNT OF EQUIPMENT

For each RMC race event (from qualifying practice to the final) the following maximum amount of equipment is allowed:

- 1 chassis
- 1 set of dry tires *
- 1 set of wet tires *
- 2 Drive Units (combined Motor and inverter)

*In the event of a race tire being damaged (Slick or Wet), the technical scrutineer may allow the competitor to nominate a “USED” tire of similar wear from the drivers registered practice tires as a replacement. The damage must be reported to the scrutineer immediately after the on-track action where the damage occurred, and prior to leaving the parc ferme / scale area.

2. EQUIPMENT

2.1 CHASSIS E10 BAMBINI AND E10 MINI

For RMC events any chassis sanctioned by an authorized ROTAX distributor, national Federations or with a valid CIK-FIA homologation is allowed with a wheelbase of 950 mm.

Front brakes are not allowed.

The brake system in accordance with regulations of national Federations or CIK-FIA.

2.2 CHASSIS PROTECTION

It is permitted to attach chassis protectors to the chassis rails left, right and front. The only material permitted is plastic. The installation and wear must satisfy the scrutineers of the event.

2.3 BODYWORK E10 BAMBINI AND E10 MINI

In accordance with regulations of national Federations or CIK-FIA.

2.4 TIRES

At all RMC events the following tires have to be used:

			Front Tyre	Rear Tyre
E10 Bambini	Dry	Mojo C2 CIK Mini	4.0 / 10.0 - 5	5.0 / 11.0 - 5
	Wet	Mojo CW CIK Mini	10 x 3,60 - 5	11 x 4,50 - 5
E10 Mini	Dry	Mojo C2 CIK Mini	4.0 / 10.0 - 5	5.0 / 11.0 - 5
	Wet	Mojo CW CIK Mini	10 x 3,60 - 5	11 x 4,50 - 5

- Strictly no modifications or tire treatment allowed
- Recommended equipment to detect tire treatment is Mini-RAE-Lite
- Threshold value of maximum 4 ppm is recommended
- Tires must be mounted according to the sense of rotation defined on the tire

2.5 DATA ACQUISITION

Only systems which are approved by ROTAX and defined in these regulations are permitted to be connected to the original E10 harness via the Deutsch connection dedicated for this purpose.

The approved Data systems are:

- MYCHRON 6
- ROTAX TRAX system
- ROTAX E10 steering wheel module
- ROTAX BUDS and BUDS light
- ROTAX CAN Data Recorder module

The Chief Scrutineer has full access to all data from any competitor at any time during the event.

Modification of the E10 wire harness is strictly forbidden.

2.6 COMPOSITE MATERIALS

Composite materials (**carbon-fibre, etc.**) are banned except for the chain guard, seat and the floor tray.

Alloys from different metals / substances are not considered as composite materials.

2.7 SAFETY EQUIPMENT

For RMC overalls, helmets, kart shoes, gloves and other kind of driver protection must comply with the regulations of the national Federation or CIK-FIA.

2.8 ADVERTISING ON DRIVE UNIT OR ACCESSORIES

No sponsor stickers allowed on the power unit or any of the components except original "ROTAX Racing" stickers on batteries as supplied.

3. ENGINE SEALING, SCRUTINIZING

At RMC events, Power trains which are registered and conform to the following technical regulation, are legal to be used. <https://www.ROTAX-racing.com/engine-registration>

For all E10 events only power trains sealed by ROTAX are allowed to be used.

The Motor/Inverter must be sealed with specific ROTAX engine seals (**black anodized aluminium seal with "ROTAX" - logo and a 6-digit serial number and a barcode**) By means of the steel cable the Motor/Inverter must be sealed as in the picture.

After sealing the Motor/Inverter seal thread must be squeezed using calliper ROTAX 276110.



At scrutineering the driver has to present:

- The Motor/Inverter with the undamaged engine seal(s)

Note

FOR ALL COMPONENTS OUTSIDE THE ENGINE SEAL, THE COMPETITOR IS RESPONSIBLE TO ASSURE THE CONFORMITY WITH THE TECHNICAL REGULATIONS.

4. MODIFICATIONS, REPAIRS AND ADDITIONS

4.1 MODIFICATIONS

Neither the Drive unit nor any of its ancillaries may be modified in any way. "Modified" is defined as any change in form, content or function that represents a condition of difference from that originally designed. This is to include the addition and / or omission of parts and/or material from the Powertrain package assembly unless specifically allowed within these rules. The adjustment of elements specifically designed for that purpose shall not be classified as modifications, i.e., brackets and mountings.

The repair of a thread is allowed.

Genuine ROTAX E10 components only that are specifically designed and supplied are legal, unless otherwise specified.

A full list of the components can be found in the link below.

https://www.ROTAX-racing.com/assets/uploads/E10/IPC-ROTAX_E10_2025-1.pdf

Note

ANYTHING WHICH IS NOT EXPRESSLY ALLOWED IN THE TECHNICAL REGULATIONS IS FORBIDDEN.

4.2 INTERNAL ADDITIONS

No additional material may be added except in the case of repairs and shall only restore the components to original specifications.

4.3 LEGAL ADDITIONS

Chain guard and engine mount

Battery mounting / support brackets

Ducting channelling air to the rear brake disk

Adaptations to allow the safe fitment of the Steering wheel module

4.4 NON-TECH ITEMS

Non-original fasteners, circlips, washers and throttle cable housing.

4.5 MEASUREMENTS

When taking any dimensional reading, of the following technical regulation, in the order of accuracy of 0,10 mm or even more precise, the temperature of the part must be between +10°C and +30°C.

Before taking any decision based on this regulation a check for available Bulletins* is mandatory.

* <https://www.ROTAX-racing.com/rmc-regulations>

5. TECHNICAL SPECIFICATION ROTAX E10

5.1 ROTAX E10 BAMBINI AND E10 MINI

The only allowed drive unit (Motor and Inverter) is the ROTAX E10 as provided and sealed by ROTAX.

The drive unit must be used with the original as supplied ROTAX E10 components:

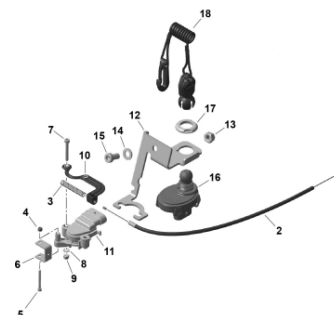
All fitments must satisfy the scrutineer of the event.

It is only allowed to use OEM parts as supplied by ROTAX at the event.

5.2 DESS KEY TERMINAL

All components must be fitted according to the illustration.

It is permitted to adjust the height of the mounting plate with an adapter plate when required.



5.3 FIRMWARE AND POWER SETTINGS VALIDATION

The ROTAX E10 has pre-programmed power settings that can be adjusted by installing an alternative DESS key which is supplied by ROTAX.

Orange DESS key – Bambini power setting – Mapping A

Grey DESS key – Mini power setting – Mapping B

Green DESS key – High Performance mode – Mapping C

Procedure for scrutineering checks for the Drive Unit

1. Connect the BUDS dongle and the diagnosis cable to the Deutsch connector on the cable harness.
2. Connect the USB end to the PC.
3. Ensure the E10 is turn on, but not in drive mode.
4. Start the BUDS 3 application and log in using the user account.
5. Select in the BUDS menu "Scrutineering" and generate a PDF report.

The PDF report will provide following information

1. Serial no. of E10 Drive Unit
2. Serial no. of Primary Battery
3. Serial no. of Secondary Battery (where applicable)
4. Software version of Drive Unit
5. Power mapping (A, B, C, D) triggered by the DESS key during the last 60 minutes of operation of the E10.

The only power mapping allowed to be used in each category during the event will be defined in the event supplementary regulations.

Pre and post-race technical checks can be performed on all the E10 components at any time by the technical scrutineer.

Any competitor found to be manipulating or not using the nominated firmware, DESS key or power mapping as set out in the supplementary regulations will be excluded from the event.

Scrutineering must confirm compliance with the following checks:

- E10 Drive Unit seal no. must be in line with the E10 Drive Unit seal number registered by this competitor for the event.
- E10 Motor serial no. must match the data in the BUDS report.
- The software version of Drive Unit must be the same as defined in the regulations.
- Power mapping utilized for the scrutinized element of the competition must match that as defined in the event supplementary regulation's.

If any deviation is found the competitor will be excluded from the event.

6. TECHNICAL SPECIFICATION

6.1 DRIVE UNIT

ROTAX designed, Air cooled 3 phase inner rotor Motor.

Combined Motor & Inverter drive unit.

MAX RPM 10,000 (1/min)

6.2 COOLING SYSTEM

Air cooled drive unit and battery pack/s

6.3 SYSTEM VOLTAGE

48 Volt

6.4 CERTIFICATION

FIA Approval - 065-AED-70 and 065-AED-10

IP67

NOTE : FIA Approval is only valid up to a Maximum deployment power of 7.5KW

6.5 BOOST FUNCTION

Available, pre-set by ROTAX. Operated by the driver.

Time limit activation. Preset recharge time.

Not adjustable.

6.6 REVERSE FUNCTION

Available. Operated by the driver.

Can only be activated whilst stationary.

6.7 STEERING WHEEL MODULE

Integrated LED status lights.

State of charge (SOC) display

Boost button

Reverse button

6.8 BATTERY

Capacity 1,5 kWh (per pack)

Weight 12kg

Lithium-ion batteries incl. BMS (Battery Management System)

Charging input = 230V 15A / 120V 13A

Charging modes = Normal Charging, Fast Charging, Storage Charging



7. ROTAX E10 OPERATOR'S MANUAL

The ROTAX E10 must be operated in accordance with the operator's manual at all times

<https://www.ROTAX-racing.com/assets/uploads/E10/Installation-and-Operation-Manual-ROTAX-E10.pdf>

7.1 SPROCKETS / GEARING

For the below listed categories a fixed gear ratio may be added to the supplementary regulations for the event.

	Drive unit	Rear Axle
E10 Bambini	TBC	TBC
E10 Mini	TBC	TBC

Front sprocket :

Sprocket must be marked with "ROTAX" and the respective number of teeth.

The sprocket must be mounted with the markings showing towards the outside.

Only Sprockets with 13 - 20 teeth are legal to be used.

Rear sprocket :

Only rear axle sprockets of 219 pitch are permitted.

The use of half-tooth sprockets, offset-tooth sprockets, non-standard tooth profiles, or any device, process, machining, treatment, or modification intended to alter the effective gear ratio is strictly prohibited.

A scrutineer may use an original ROTAX sprocket of the defined sizes as template gauge to check the compliance of the above regulation.

----- END OF TECHNICAL REGULATION -----