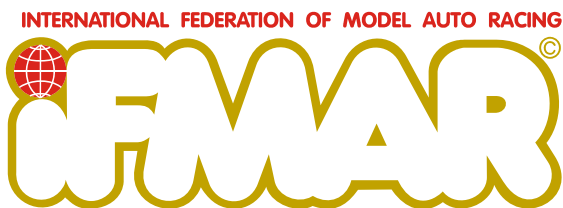


**INTERNATIONAL FEDERATION OF MODEL AUTO RACING**



**ELECTRIC MOTOR  
APPROVAL  
PROCEDURE**



#### IFMAR Electric Chairman

Frank Mostrey  
Tenierslaan 28  
B 1910 Kampenhout  
Belgium

Phone: +32 16 65 75 18

Fax: +32 16 65 75 18

Email: [electric.chairman@ifmar.org](mailto:electric.chairman@ifmar.org)

Dear Madame/Sir

The 2012 IFMAR World Championships for the Electric ON-ROAD classes, 1/10 & 1/12<sup>th</sup> scale will be held in The Netherlands. Your company may wish to submit motors for approval previous to these IFMAR World Championships.

The approval is to ensure that all competitors have equal access to the latest motors and batteries, thus ensuring wherever possible, fair racing to decide the World Champion. IFMAR makes no representation as to the quality or efficacy of the products approved. If parts of an approved motor are changed, the motor must be sent to IFMAR for re-approval.

**If your motors are already approved, you have no need to seek new approval unless changes have been made.**

IFMAR approves the construction only. If you wish to submit new products (or products which are significantly changed since their last approval) to be approved, for official use at the Electric ON-road W.C. and future IFMAR W.C. events you must send them for approval before March 12<sup>th</sup> with the various forms and documents attached. (Evidence of the availability of the product should be sent to the chairman)

By this date the samples of the products and the completed documents must be in our hands. ANY PRODUCT OR FORM RECEIVED AFTER THE CLOSING DATE CANNOT BE APPROVED FOR THE 2012 WORLD CHAMPIONSHIPS and cannot be used at any other IFMAR World Championships.

The IFMAR Electric Section looks forward to receiving your products for approval.

Sincerely  
Frank Mostrey  
Electric Chairman, IFMAR

#### PLEASE READ THIS FIRST

Any manufacturer, distributor, agent or retailer may submit products for approval. Providing the products meet the specifications and requirements of the IFMAR rules in force at the time of approval, and are submitted by the closing date and meet the availability requirements of IFMAR rules, IFMAR will approve the product.

Please: Complete one separate IFMAR Motor Homologation Form for each motor.

- A** Prepare one copy of the commercial documents that show sale of 300 motors and a list of a distributor/retailer in the appropriate continent(s). Sent these together with three (3) motors and their Application form to the section chairman
- B** Send three (3) motors with a copy of the Motor Specification Checklist to WTS, Great Britain for checking.
- C** Approval and handling fee: Effect a pre-payment of 200 USD (at no cost for beneficiary) per presented motor into the accounts if IFMAR BEFORE the 12 of March 2012,

#### IFMAR BANK DETAILS

IFMAR International bank Account: SE48 6000 0000 0000 4310 9969  
Swift: HANDSESS  
Handelsbanken BOX 135  
601 03 Norrkoping  
Sweden

## IFMAR ELECTRIC MOTORS Basic information

### MOTORS

Only IFMAR approved motors may be used. Approved motors must meet the following specifications and be commercially available four (4) months prior to the World Championship. Availability requirements must be met at the time of submittal. Submittal deadline is March 12th 2012

Upon receipt of the inspection sheet from the laboratory confirming that the product meets all technical specifications and the Chairman is satisfied that all IFMAR availability requirements have been met the product will be included on the approved products list for use at WC events.

Please ensure that, when sending samples for approval, you state on the Customs Declaration Form: **"Samples Only – No Commercial Value"**. (For countries that necessitate a customs value do not exceed 19,00 USD per shipment) Please also make sure that the package you send is free of costs for the receiver. Shipments received against payment of any fee will **NOT** be accepted.

Notify by email: [electric.chairman@ifmar.org](mailto:electric.chairman@ifmar.org) that your products have been posted and if available the handler's tracking number.

Requirements are in accordance with the IFMAR Electric Batteries and Motor WC rules.

Extracts from the rules below are for your convenience only

#### 4. MOTORS APPROVAL PROCEDURE.

From 2012, IFMAR only approve '05' size Brushless Motors. Only IFMAR approved motors may be used. Approved motors must meet the following specifications and be commercially available four (4) months prior to the World Championship. Availability requirements must be met at the time of submittal. The deadline date for submitting new motors to be approved for the next World Championship is four (4) months prior to the date of the Opening Ceremony of the World Championship. Previously approved motors remain on the approved products list for their lifespan, or until IFMAR deem they are no longer applicable.

- 4.1 Manufacturers must submit motors direct to a testing laboratory, the name and address of which will be supplied, on request, by the IFMAR Electric Section Chairman. Manufacturers will be responsible to pay all laboratory fees for testing. Upon receipt of laboratory confirmation to the IFMAR Electric Section Chairman that the product meets all specifications and the Chairman is satisfied that all IFMAR availability requirements have been met, the motor will be included on the approved products list for use at W.C. events.
- 4.2 An approved products list of motors approved for use at the World Championships must be posted on the IFMAR website and Organizer's website (if available) four (4) months prior to the event and the list shall be included in the race acknowledgement package sent to each competitor no later than two (2) months prior to the event.
- 4.3 A minimum of two thousand (2000) brushless motors must be available at the time of submittal. A minimum of three hundred (300) brushless motors must have been sold to at least three (3) distributors or hobby shops or OEM's at the time of submittal. The manufacturer has to provide addresses of hobby shops or the like, that any driver who wishes to obtain these motors at the time of the approval can do so.

#### 5. BRUSHLESS MOTORS TECHNICAL SPECIFICATIONS.

- 5.1 General definition of a Brushless Motor:

- a) Sensored or sensorless motors are allowed.
- b) The motor has to be rebuild able. Ball bearings are allowed.
- c) If the motor is sensored:

It must use a six position JST ZH connector model number ZHR-6 or equivalent connector with 6 JST part number SZH-002T-P0.5 26-28 awg contacts or equivalent.

Wire sequence must be as follows:

- Pin #1 - Black wire ground potential
- Pin #2 - Orange wire phase C
- Pin #3 - White wire phase B
- Pin #4 - Green wire phase A
- Pin #5 - Blue wire temp control, 10 k Thermistor referenced to ground potential
- Pin #6 - Red wire + 5.0 volts d.c. +/- 10%.

Compatible speed control must use the 6 position JST header part number X-6B-ZR-SMX-TF (where the X denotes the style of the header), or equivalent. The power connector has to be clearly marked A, B, C.

A for phase A

B for phase B

C for phase C

#### **`05` Size Brushless Motor specifications and dimensions:**

##### 5.2 Can Assembly (not including rotor shaft):

- a) Overall maximum/minimum diameter is 36.02mm./34.00mm., measured at whatever point yields the maximum/minimum dimension, excluding solder tabs or lead wires.
- b) Overall maximum/minimum length is 53.00mm/50.00mm., measured from the mounting face of the motor to the furthest most point of the end bell/plate, not including solder tabs, lead wires or original manufacturer's logo or name.
- c) Motor mounting holes must be on 25.00/25.40mm centers.
- d) If the stator cannot be easily removed from the assembled motor for technical verification of sizes or construction, then the Can/Sleeve must have:
  - Slots or holes that will allow measurement of the stator length.
  - Slots or holes to allow visual appraisal of the laminates used in the stator.

##### 5.3 Stack/Stator:

- a) The Stack or Back Iron must be continuous. The laminations have to be one after the other without anything in between.
- b) Stack/Back Iron length minimum is 19.30mm, maximum is 21.00mm.
- c) The thickness of the Stack/Back iron laminations is 0.35+/-0.05mm.
- d) All laminations must be of the same material.
- e) Inside diameter of Stack or Windings equals the central space between the laminations or assembly of windings and must accept 'plug' gauges of 12.5 mm minimum, 16.0 mm maximum. These dimensions to be measured with the centre of the 'plug' gauge in-line with the centre of the motor Can. (ie. Concentric to can).

##### 5.4 Winding:

- a) Delta and Y wound stators are permitted.
- b) Only circular (round) pure copper wire permitted. No turn limit.

##### 5.5 Rotor:

- a) Output shaft diameter must be 3.175mm.
- b) Only one piece, two pole Neodymium or Ferrite magnetic rotors are permitted.
- c) Magnet minimum length 23.00mm, maximum 27.00mm.
- d) Magnet minimum diameter 12.00mm, maximum 15.50mm.

##### 5.6 All motors must have the original manufacturer's logo or name moulded or etched into the end bell/plate.

##### **5.7 No hybrid (mixing of parts from approved brushless motors) allowed.**

---

## APPLICATION

**A:** This page of the motor approval request together with Copies of invoices proving that at least 300 motors have been sold and a list of distributors covering all continents for availability checks as well as three (3) motors (ready to run) should be sent to:

**IFMAR Electric Chairman**

Frank Mostrey  
Tenierslaan 28  
B 1910 Kampenhout  
Belgium

**Phone:** +32 476 555 308  
**Fax:** +32 16 65 75 18  
**Email:** [electric.chairman@ifmar.org](mailto:electric.chairman@ifmar.org)

**B:** A copy of this page of the motor homologation form together with and a copy of the Motor Specification Checklist and three (3) motors should be sent to:

**WTS**

23 Prince Rupert Road  
Stourport On Severn  
Worcestershire DY13 0AS *(the 5<sup>th</sup> digit is a "zero", DY13zeroAS)*  
United Kingdom

Motor submitted for approval:	
<b>Unique Number/ Specific Brand / Trade name of Motor:</b>	
<b>Availability</b>	<b>Evidence (Invoices, etc.)</b>
300 sent to Hobby Stores, Distributors, OEM's	Number of attachments:
<b>List of distributors: Europe, North America, South America, Africa, Asia, Australia:</b> <input type="checkbox"/>	Number of attachments:

I do understand that:

- Shipments received against any payment will not be accepted.
- Delayed or blocked products by authorities (beyond the submission date) will not be allowed to the approval process nor considered a reason to extend the deadline for submission. The decision to refuse or approve submitted objects is IFMAR's exclusive right and cannot be an issue to any claims.
- Submissions that turn out to be subject or matter to complaints regarding international safety regulations or infringing patents will be withdrawn from the list, even after approval. In such case the submitter fully agrees not to make any claim against IFMAR, including IFMAR's representatives, employees, and subcontractors. Furthermore he shall indemnify these against any legal liability for claims or suits, including costs and expenses incidental thereto provided that IFMAR shall notify the submitter of any claims or suits without undue delay.

Signed for and on behalf of: .....

By (Name):.....

Position: .....

.....  
Signature

*Submitted motors will not be returned*

# Motor Specification Checklist

Fill in the grey shaded boxes below with the details of the motor being submitted for approval			For IFMAR use only		
Requirement	Nominal Size	Tolerance +/- Acc	Acc	Rej	n/a
# Windings ( +type)					
Can Diameter					
Can Length					
Shaft Diameter					
Magnet Type					
Trade Name of Motor					

Please fill in the details above for one type of motor. Use another form for more types of motors (photocopies accepted). Send this form with 3 (three) samples (fully built) of the motor to:

Paul Worsley,  
 23 Prince Rupert Road  
 Stourport On Severn  
 Worcestershire DY13 0AS (the 5<sup>th</sup> digit is a "zero", DY13zeroAS)  
 United Kingdom

**Make sure there are no costs for receiver**

**NOTE: CLOSING DATE FOR APPROVAL: 12 March 2012**

**Submitting Company Name:** .....

**Address:** .....

.....

**Country:** .....

I agree that the above information is correct to the best of my knowledge. I accept that the samples submitted will be used to compare and check motors at IFMAR World Championships.

Signed for and on behalf of: .....

By (Name):.....

Position: .....

.....  
Signature

**For IFMAR use only:**

Approval by WTS,.                      . Date received:.....2012

The motor submitted DOES / DOES NOT meet the current applicable IFMAR specifications.

Signatory and Date: .....