



**EFRA 1:8 IC track section Chairman:**

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**EUROPEAN FEDERATION OF RADIO OPERATED MODEL AUTOMOBILES**

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## MUFFLER AND INS-Box HOMOLOGATION PROCEDURE

Dear Manufacturer,

EFRA is an organization that tries to keep up with environmental regulations. Noise is an important factor in our model car sport, so noise regulations need to be watched carefully.

Mufflers for 1/8<sup>th</sup> and 1/10<sup>th</sup> IC car racing need to be homologated and only homologated mufflers will be allowed for EFRA races. The majority of countries affiliated with EFRA follow this rule.

In some classes a homologated INS box is also mandatory.

The noise limitations and specifications for the mufflers will change every 4 or 5 years. Sometimes this is due to environmental regulations and sometimes because of the evolution in motor designs.

EFRA changed to the 3-chamber muffler in 2001 and now for 2008 has made a new specification for the mufflers. These changes have been communicated with the majority of the European manufacturers.

Procedure for muffler homologation.

For each homologation the following procedure is valid:

- Contact the homologation officer from EFRA to send him a drawing from the muffler.
- After a brief examination on the design you will get a message to send in 2 samples.
- Testing and verifying will take between 4 and 6 weeks, a little bit depending on the weather.
- In the meantime the EFRA treasurer will be notified and you will receive an invoice for the homologation fee.
- After payment and after the tests have been carried out you will receive the homologation number.
- In case the tests are failing you will have the opportunity to send in an adapted muffler for further testing.

Procedure for INS box homologation.

For each homologation the following procedure is valid:

- Contact the homologation officer from EFRA to send him a drawing from the INS box.
- After a brief examination on the design you will get a message to send in 3 samples.
- Testing and verifying will take between 4 and 6 weeks, a little bit depending on the weather.
- In the meantime the EFRA treasurer will be notified and you will receive an invoice for the homologation fee.
- After payment and after the tests have been carried out you will receive the homologation number.
- In case the tests are failing you will have the opportunity to send in an adapted box for further testing.

Mufflers and INS boxes will be tested only once a year in the winter period.

- You can send in the mufflers and INS boxes till December 31<sup>st</sup>.
- On March 1<sup>st</sup> the list with all the homologated mufflers and INS boxes for the new season will be available on the EFRA website.
- No mufflers and INS boxes will be added to the list after March 1<sup>st</sup>.

Homologation fees.

€ 500,- for each muffler homologation. EFRA associated members receive a 50% discount on this price.

€ 800,- for each INS box. EFRA associated members receive a 50% discount on this price.

[www.efra.se](http://www.efra.se)

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As long as the specifications do not change the homologation is valid, unless it is detected that the mufflers made do not confirm with the sample that was send in for the test procedure. EFRA has the right to withdrawn a homologation if it finds prove that the muffler sold does not comply with the muffler tested.

Each homologation number given out by EFRA is only valid for that specific muffler and one specific brand.

The same number can never be used for 2 or more brands even if the design is 100% the same.

The same applies for an INS box.

## Specifications for the new mufflers.

As already communicated earlier this year EFRA has made a few changes to the muffler rules for 2008.

You are all probably aware of the difficulties a lot of clubs have with noise regulations. When talking about IC model car racing we all know that we make noise. Some clubs are lucky, because they are situated far away of the community, but a lot of clubs are not so lucky. Also new clubs that have to deal with local governments most of the time have to spend a lot of money and time in convincing the community that the noise level is within limits and to get a permit.

EFRA has started to review the noise level last year with the European Manufacturers in Sweden during the European Championships. The development in engines the last couple of years has resulted in RPM levels that are approx 8000 till 10000 RPM higher as approx 6-7 years ago. Due to this increase the noise level from the cars has gone up more or less in the same level.

In our sport unfortunately more RPM always means more noise. This is the case for both 1:8<sup>th</sup> and 1:10<sup>th</sup> engines.

To bring back the noise level it was necessary to change the technical specifications of the existing mufflers.

With the specifications now accepted at the EFRA AGM the designs of the mufflers will be more or less the same within certain parameters.

Until now manufacturers have always been trying to design a muffler that will give the best performance, however best performance also means more noise.

Apart from the design, also the materials which are used for the muffler can influence the noise level. Harder material is more noisy than softer material. A tailpipe of 8x12 is more quit than a tailpipe of 8x10mm. Using some kind of isolation around the muffler will make it more quit, however this will be a solution probably not economical feasible.

The wording for the new mufflers as accepted at the EFRA AGM is as follows:

*Each motor must be equipped with an exhaust system and inlet silencer (no INS for Off-Road), to reduce the amount of noise generated by the car.*

*The muffler must be of a 3-chamber type. No holes are allowed in the first chamber. All gasses must pas all 3 chambers. See enclosed design in appendix 8*

*The shape of the exhaust pipe has to be of a straight revolved (rotated) type. Any other shape like oval, or bend, or in any other form that is not reproducibile by a lathe, is not allowed (this is to avoid manifolds welded to the muffler)*

*The design of the separator between the 2nd and 3rd chamber is a simple disc with only one flat part. The gap of this flat part is for 1/8th mufflers max. 5mm, and should be positioned opposite the tailpipe. (Other dimensions see drawing)*

*No conical manifolds are allowed, inlet and outlet of the manifold max 13mm, measured on the inside (12mm for 1/10<sup>th</sup>). The maximum noise level for a muffler with INS box (for IC track with box and for Off-Road without box) is 83 dB's, measured at ten (10) metres distance and one (1) metre high for a single car.*

*EFRA's definition of a noise level is always final.*

*Only EFRA homologated 3-chamber mufflers are allowed on EFRA sanctioned events. The EFRA homologation number must be engraved on the sidewall of the muffler. This proposal, if accepted at the EFRA AGM will be effective for 1:8 IC track as from April 1st 2008, 1:8 Off-Road as from April 1st 2008 and for 1:10th IC track as from December 31st 2008.*

Basically this means that all 1:8 scale IC track cars will have to use an INS box and a new muffler as from April 1st.

All 1:8th IC Off-Road cars will have to use a new muffler as from April 1st.

All 1:10th IC track cars will have to use an INS box and a new muffler as from January 1st 2009.

All existing muffler lists will be invalid as soon as the new dates are there and old mufflers cannot be used for official EFRA races.

New 1:8 scale mufflers will be numbered with EFRA 3!!!, so for instance EFRA 3001 and so on.

New 1:10th scale mufflers will be numbered with EFRA 36!!, so for instance EFRA 3601 and so on.

Since 1:8th scale mufflers are more noisier these will have to change immediately, starting April 1st 2008.

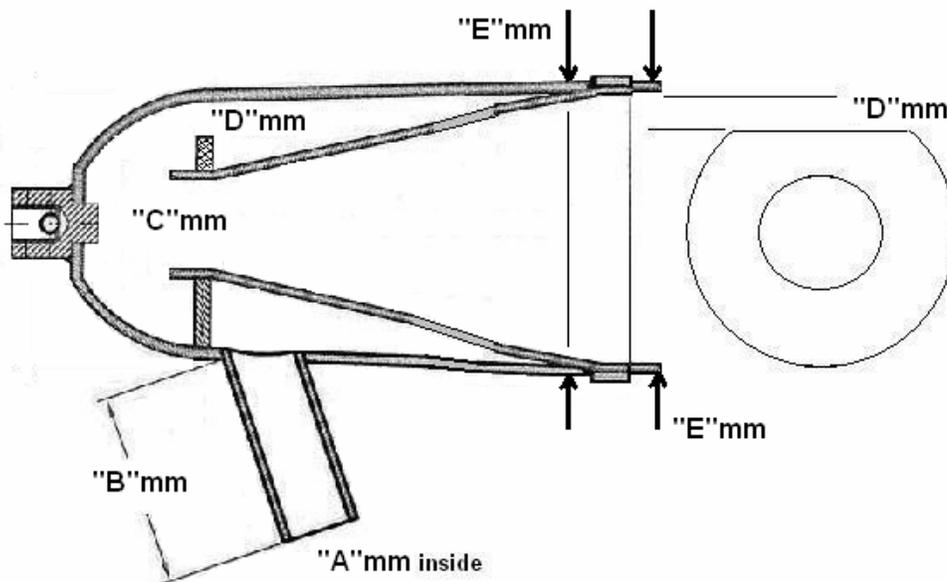
Homologation is **possible till March 20th**, but do not wait till the last moment. This date is only valid for 2008 due to the new standards. For 2009 the deadline to send in mufflers is December 2008, 31st.

For 1/10th mufflers can be send in during the whole year (2008), since they will be necessary only for 2009.

The same applies for INS boxes for 1:10th, you can send them in during 2008 for homologation.

The measurements in the drawings are slightly changed due to tolerances which are now put into the actual drawing. Also measurement "E" needed more clarification since in the drawing accepted at the AGM it looked like this measurement was on the end of the pipe.

If some-one of you is not sure if his design will be valid, please do send me the drawing before starting to produce, this will avoid time spending on a sample which will be refused due to its design.



The measurements specified here under do not guarantee a specific noise level. It all is a combination of measurements, design and used materials. The measurements are simply minimum or maximum values that need to be implemented in your design.

	1/10th	1/8th	
A	5.10 mm max	8.00 mm max	no tolerance
B	20 mm min	25 mm min	1mm tolerance
C	8.0 mm max	10.0 mm max	0.2mm tolerance



D	4.00 mm max	5.00 mm max	no tolerance
E	35.0 mm max	38.0 mm max	0.5mm tolerance

During the 2008 season we will have a close look at the noise levels at the various international races. If necessary we will even open mufflers to see if they comply to the rules. Getting the noise down is important for the whole Model Car Racing Scene and a "must" if we still want to race in 10 years time.

It has happened occasionally that a muffler that was send in for homologation and approved showed up at an event in a different version. This will not be tolerated and the manufacturer may risk a ban for his muffler for a whole season. In case you make an "in-line" version for a fixed header or a normal version with a silicon tube connection, just send in both version, so that we can adapt the diagrams (both with one homologation number). A modification like a bridge to support the stinger pipe to the muffler side is a modification that will be allowed without a change in the drawings.

On behalf of the 1:8<sup>th</sup> IC track section 1/8<sup>th</sup> Off-road section and the 1/10<sup>th</sup> IC track section.

Regards,

Sander de Graaf

EFRA 1:8 Track Section Chairman and homologation officer.