Dimensional tolerances of ferrite cores
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIMENSIONAL TOLERANCES OF FERRITE CORES

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IEC TR 63090, which is a Technical Report, has been prepared by IEC technical committee 51: Magnetic components, ferrite and magnetic powder materials.

The text of this technical report is based on the following documents:

<table>
<thead>
<tr>
<th>Enquiry draft</th>
<th>Report on voting</th>
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<tbody>
<tr>
<td>51/1166/DTR</td>
<td>51/1186/RVDTR</td>
</tr>
</tbody>
</table>

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.
The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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INTRODUCTION

This document shows the dimensional tolerances of ferrite cores that are generally used by ferrite core suppliers. As a reference, this is useful for ferrite core suppliers and users when they design ferrite cores and/or the components which use the ferrite cores.

IEC has published international standards regarding ferrite core dimensions and their tolerances, as listed in the Table 1, and core sizes in each core shape were chosen from industrial standards from Europe, Japan and USA. However, there are some cases that lack unity in the dimensional tolerances even if ferrite core dimensions are close.

Because many new sizes are still designed for the E, ETD/EER, planar ER and ring core, this document gives information about the dimensional tolerances for reference dimensions of each core shape.

Table 1 – IEC standards of ferrite core dimensions

<table>
<thead>
<tr>
<th>IEC standard</th>
<th>Current standard</th>
</tr>
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<tbody>
<tr>
<td>IEC 62317-1, Ferrite cores – Dimensions – Part 1: General specification</td>
<td>///</td>
</tr>
<tr>
<td>telecommunications, power supply, and filter applications</td>
<td></td>
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<tr>
<td>standard)</td>
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<tr>
<td>IEC 62317-4, Ferrite cores – Dimensions – Part 4: RM-cores and associated</td>
<td>///</td>
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<tr>
<td>parts</td>
<td></td>
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<tr>
<td>parts for use in inductors and transformers</td>
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<td>IEC 62317-6, Ferrite cores – Dimensions – Part 6: ETD-cores for use in</td>
<td>///</td>
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<tr>
<td>power supplies</td>
<td></td>
</tr>
<tr>
<td>IEC 62317-7, Ferrite cores – Dimensions – Part 7: EER-cores</td>
<td>///</td>
</tr>
<tr>
<td>IEC 62317-8, Ferrite cores – Dimensions – Part 8: E-cores</td>
<td>///</td>
</tr>
<tr>
<td>IEC 62317-9, Ferrite cores – Dimensions – Part 9: Planar cores</td>
<td>///</td>
</tr>
<tr>
<td>IEC 62317-10, Ferrite cores – Dimensions – Part 10: PM cores (future</td>
<td>IEC 61247</td>
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<td>standard)</td>
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<tr>
<td>IEC 62317-11, Ferrite cores – Dimensions – Part 11: EC-cores for use in</td>
<td>///</td>
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<td>power supply applications</td>
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<tr>
<td>IEC 62317-12, Ferrite cores – Dimensions – Part 12: Ring cores</td>
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<td>power supply applications</td>
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<tr>
<td>IEC 62317-14, Ferrite cores – Dimensions – Part 14: EFD-cores for use in</td>
<td>///</td>
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<tr>
<td>power supply applications</td>
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</tbody>
</table>

Cause of variations in dimension

The shrinkage of <Ready to press> powders, the density of mouldings, the deformation of ferrite cores, etc., are considered as causes of variations in dimension.

They are gathered in the following cause-and-effect diagram in Figure 1.
Consideration of the dimensional tolerance

The dimensional tolerance is considered according to the processing conditions, and the core part is classified into the following three conditions:

– decided according to the mould and sintering, or
– decided according to the press direction, or
– grinding direction.
1 Scope

This document gives guidelines on the dimensional tolerances of ferrite cores. This document is considered as general information useful in the dialogue between ferrite core suppliers and users.

2 Normative references

There are no normative references in this document.