

# INTERNATIONAL STANDARD

---

**Printed electronics –  
Part 303-1: Equipment – Roll-to-roll printing – Mechanical dimensions**

IECNORM.COM : Click to view the full PDF of IEC 62899-303-1:2018



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2018 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

#### IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

#### IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

#### IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

IECNORM.COM : Click to view the full text of IEC 62599-300-1:2018



IEC 62899-303-1

Edition 1.0 2018-05

# INTERNATIONAL STANDARD

---

**Printed electronics –  
Part 303-1: Equipment – Roll-to-roll printing – Mechanical dimensions**

IECNORM.COM : Click to view the full PDF of IEC 62899-303-1:2018

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 19.080; 37.100.10

ISBN 978-2-8322-5672-5

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 Mechanical dimensions.....	6
4.1 General.....	6
4.2 Overview of printing equipment for printed electronics .....	7
4.3 Width.....	7
5 Example of the specifications of the printing equipment.....	8
Annex A (informative) Mechanical dimensions (width and length) .....	9
Figure 1 – Overview of R2R printing system .....	7
Figure 2 – Example of mechanical dimensions of printed web.....	8
Figure A.1 – Example of mechanical dimensions (width and length).....	9
Table 1 – Example of the specifications of printing equipment .....	8

IECNORM.COM : Click to view the full PDF of IEC 62899-303-1:2018

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## PRINTED ELECTRONICS –

**Part 303-1: Equipment – Roll-to-roll printing –  
Mechanical dimensions**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62899-303-1 has been prepared by IEC technical committee 119:Printed Electronics.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
119/205/FDIS	119/215/RVD

Full information on the voting for the approval of this International Standard 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.

A list of all parts in the IEC 62899 series, published under the general title *Printed electronics*, can be found on the IEC website.

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.

IECNORM.COM : Click to view the full PDF of IEC 62899-303-1:2018

## INTRODUCTION

Printed electronics technologies have recently emerged from the trial stage to the actual commercialization of products based upon these technologies. In order to develop these technologies on an industrial scale, it is important to have industrial scale equipment to produce a big number of products. However, unlike other electronic products, this emerging printed electronics technology does not have any standard for the mechanical dimensions of the final product or devices.

'Printing' means generally 'image printing' or simply 'print'. Printing has a long history of more than 1 000 years. Within that long history, international standards for industries, defining the size of paper and the input and output from the printing process, have been used to great effect. By having a standard for input and output, printing equipment could have a standard mechanical dimension, which would serve to avoid the complication of developing printing equipment to support unknown input or output size.

In order to follow that good practice, IEC TC 119 is introducing a document to establish standard mechanical dimensions of input and output from printed electronics equipment.

IECNORM.COM : Click to view the full PDF of IEC 62899-303-1:2018

## PRINTED ELECTRONICS –

### Part 303-1: Equipment – Roll-to-roll printing – Mechanical dimensions

#### 1 Scope

This part of IEC 62899 defines standard mechanical dimensions (especially related to the web size) of equipment for printed electronics. This document covers web-based printing equipment, but it can be used for sheet-based products.

#### 2 Normative references

There are no normative references in this document.

#### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.1

##### **roll-to-roll process**

##### **R2R process**

##### **R2R**

printing process used to print onto the web and supplied and produced on a roll

##### 3.2

##### **alignment mark**

mark that indicates where to align the fabrication process

##### 3.3

##### **trigger mark**

mark that indicates where the printing process needs to initiate that process

#### 4 Mechanical dimensions

##### 4.1 General

The measuring conditions for the mechanical dimensions shall be as follows:

- room temperature
- room humidity

Report these measuring conditions.

#### 4.2 Overview of printing equipment for printed electronics

Figure 1 shows an overview of the R2R printing system.

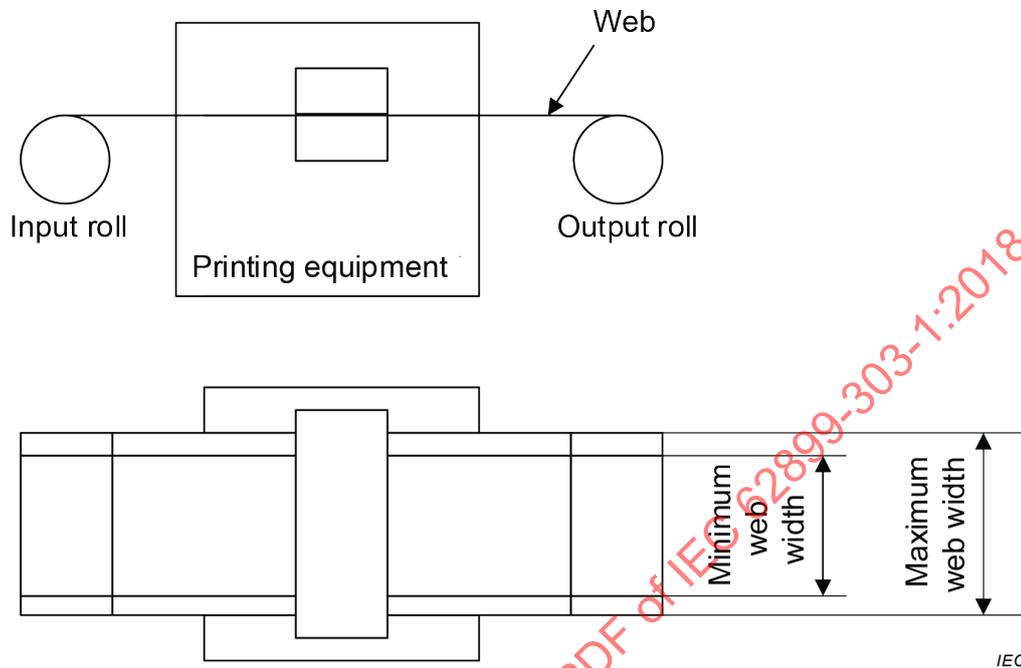


Figure 1 – Overview of R2R printing system

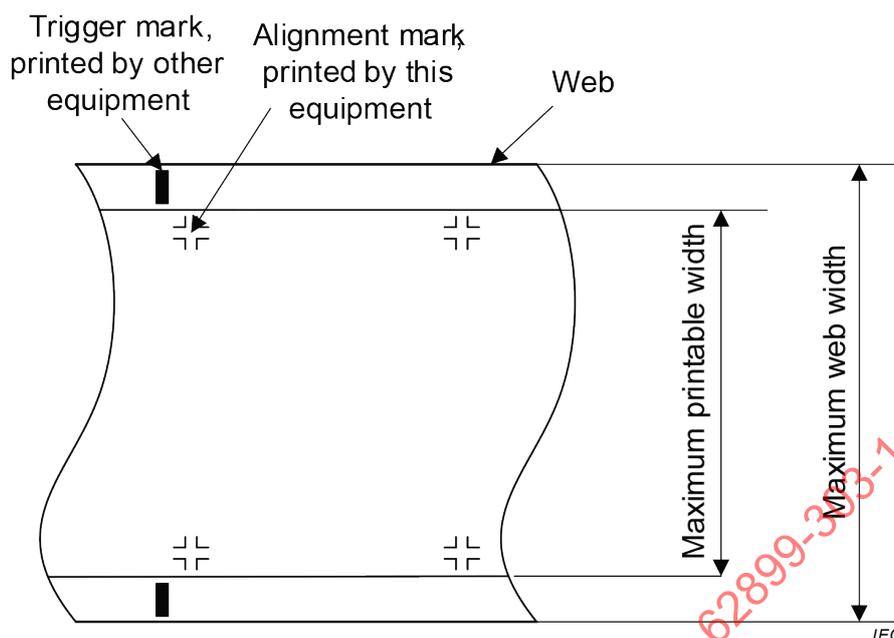
#### 4.3 Width

As Figure 1 shows, the maximum web width shall be the size of the widest web width that equipment can handle. The minimum web width shall be the size of the narrowest web width that equipment can handle. This width shall be measured in millimetres.

The recommended maximum web width shall be 300 mm, 500 mm, 600 mm, 900 mm, 1 200 mm or 1 500 mm, unless there is an agreement between supplier and customer. Those values are nominal values.

Figure 2 shows the mechanical dimensions, especially the alignment of the printing equipment.

Annex A shows the mechanical dimensions, including length for reference purposes.



**Figure 2 – Example of mechanical dimensions of printed web**

The maximum web width was defined above. The maximum printable width shall be the maximum width for the printing equipment to guarantee the output quality. This maximum printable width shall include not only the functional printed area but also the alignment mark(s) which is(are) printed by this process, if needed, for the following fabrication process.

Non-functional matter which can be printed by other equipment or non-printed matter for any use, such as trigger mark(s), shall be allowed anywhere on the web, even outside of the maximum printable width (see Figure 2).

## 5 Example of the specifications of the printing equipment

Table 1 shows an example of the specifications of the printing equipment.

**Table 1 – Example of the specifications of printing equipment**

Items	Parameters
Name of equipment	Abcdef
Maximum web width	600 mm
Minimum web width	400 mm
Maximum printable width	570 mm

These specifications shall be applied unless there is an agreement between supplier and customer.

## Annex A (informative)

### Mechanical dimensions (width and length)

Figure A.1 shows an example of the mechanical dimensions (width and length) of the web-based R2R printed electronics.

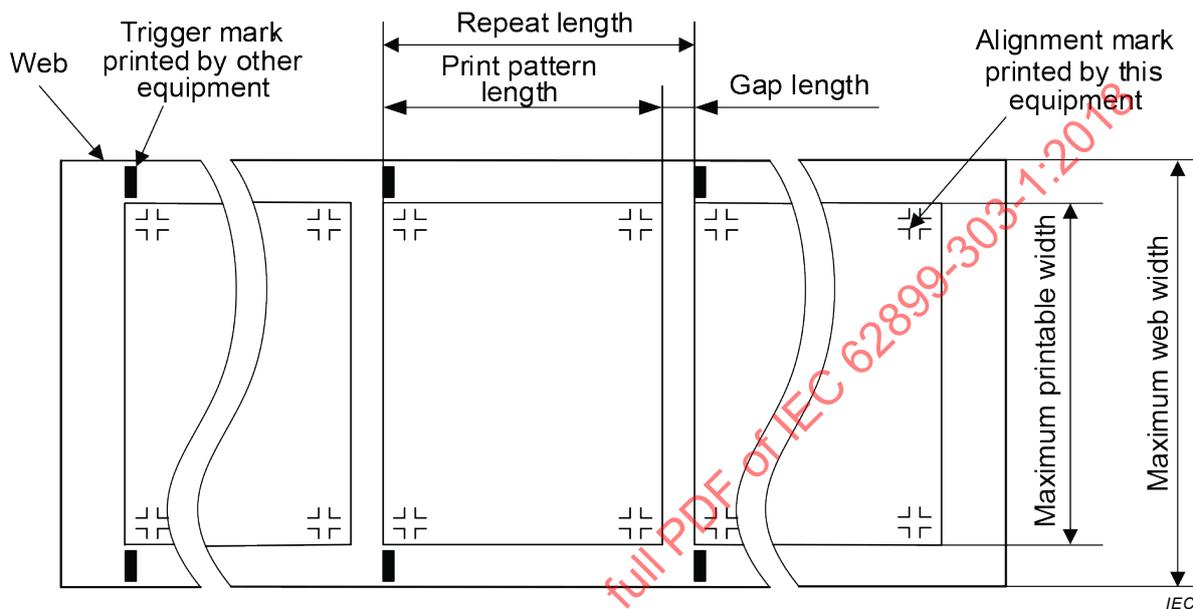


Figure A.1 – Example of mechanical dimensions (width and length)

IECNORM.COM : Click to view the full PDF of IEC 62899-303-1:2018