

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Appliance couplers for household and similar general purposes –  
Part 2-1: Sewing machine couplers**

**Connecteurs pour usages domestiques et usages généraux analogues –  
Partie 2-1: Connecteurs pour machines à coudre**





## 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
3, rue de Varembé  
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).

### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

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

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

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

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalelement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

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

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

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

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

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

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).



IEC 60320-2-1

Edition 3.0 2018-02

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Appliance couplers for household and similar general purposes –  
Part 2-1: Sewing machine couplers**

**Connecteurs pour usages domestiques et usages généraux analogues –  
Partie 2-1: Connecteurs pour machines à coudre**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 29.120.30

ISBN 978-2-8322-5446-2

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

**Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD .....	3
INTRODUCTION .....	5
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 General requirements .....	6
5 General notes on tests .....	6
6 Standard ratings .....	6
7 Classification of appliance couplers .....	7
8 Marking .....	7
9 Dimensions and compatibility .....	7
10 Protection against electric shock .....	8
11 Provision for earthing .....	8
12 Terminals and terminations .....	8
13 Construction .....	8
14 Moisture resistance .....	8
15 Insulation resistance and electric strength .....	8
16 Forces necessary to insert and to withdraw the connector/appliance outlet .....	9
17 Operation of contacts .....	9
18 Resistance to heating of appliance couplers for hot conditions or very hot conditions .....	9
19 Breaking capacity .....	9
20 Normal operation .....	9
21 Temperature rise .....	9
22 Cords and their connection .....	9
23 Mechanical strength .....	10
24 Resistance to heat and ageing .....	10
25 Screws, current-carrying parts and connections .....	10
26 Clearances, creepage distances and solid insulation .....	10
27 Resistance of insulating material to heat, fire and tracking .....	10
28 Resistance to rusting .....	11
29 Electromagnetic compatibility (EMC) requirements .....	11
Annex A (normative) Proof tracking test .....	12
Annex B (normative) Routine tests for factory wired appliance couplers related to safety .....	13
Annex C (normative) Test schedule .....	14
Annex D (informative) Comparison of typical conductor cross-sectional areas .....	15
Bibliography .....	16

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**APPLIANCE COUPLERS FOR HOUSEHOLD  
AND SIMILAR GENERAL PURPOSES –****Part 2-1: Sewing machine couplers****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 60320-2-1 has been prepared by subcommittee 23G: Appliance couplers, of IEC technical committee 23: Electrical accessories.

This third edition cancels and replaces the second edition published in 2000. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Aligned with IEC 60320-1:2015.

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

FDIS	Report on voting
23G/394/FDIS	23G/398/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.

This Part 2-1 is to be used in conjunction with IEC 60320-1: *Appliance couplers for household and similar general purposes – Part 1: General requirements*. It was established on the basis of the third edition of that standard (2015).

The clauses of this standard supplement or modify the corresponding clauses of IEC 60320-1. When a particular subclause or annex of Part 1 is not mentioned in this Part 2-1, the subclause or annex of IEC 60320-1 applies without modification as far as is reasonable. Where this standard states "addition", "modification" or "replacement", the relevant requirement, test specification or explanatory matter in IEC 60320-1 should be adapted accordingly.

Subclauses which are additional to those in Part 1 are numbered starting from 101.

In this particular standard the following print types are used:

- requirements: in roman type;
- *test specifications*: in italic type;
- explanatory matter: in smaller roman type.

A list of all parts in the IEC 60320 series, published under the general title, *Appliance couplers for household and similar general purposes*, 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.

## INTRODUCTION

Where in IEC 60320-1 the words "appliance coupler", "connector" or "appliance inlet" appear, they should be deleted and replaced by "sewing machine coupler", "sewing machine connector" or "sewing machine inlet", respectively.

## APPLIANCE COUPLERS FOR HOUSEHOLD AND SIMILAR GENERAL PURPOSES –

### Part 2-1: Sewing machine couplers

#### 1 Scope

This clause of IEC 60320-1 is replaced as follows:

This part of IEC 60320 is applicable to special purpose appliance couplers for household sewing machines. These sewing machine couplers are for alternating current only and have a rated voltage not exceeding 250 V and a rated current not exceeding 2,5 A.

The sewing machine couplers can include two or more contacts depending on the control components or circuitry required to operate the sewing machine and can be with or without earthing contact.

#### 2 Normative references

This clause of IEC 60320-1 applies with the following addition:

IEC 60320-1, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

#### 3 Terms and definitions

This clause of IEC 60320-1 applies with the following addition:

##### 3.101

##### **sewing machine coupler**

appliance coupler used exclusively on sewing machines

Note 1 to entry:

It consists of two parts:

- the sewing machine connector, which is the part integral with, or intended to be attached to, the cord or cords;
- the sewing machine inlet, which is the part integrated in or incorporated in the sewing machine or its control or intended to be fixed to it.

#### 4 General requirements

This clause of IEC 60320-1 applies.

#### 5 General notes on tests

This clause of IEC 60320-1 applies.

#### 6 Standard ratings

This clause of IEC 60320-1 applies amended as follows: