

PUBLICLY AVAILABLE SPECIFICATION

**Connectors for electrical and electronic equipment – Product requirements –
Part 3-126: Rectangular connectors – Detail specification for 5 pole power
connectors for industrial environments with push-pull locking**



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
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

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

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 It also gives information on projects, replaced and withdrawn publications.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

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

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

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

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

PUBLICLY AVAILABLE SPECIFICATION

**Connectors for electrical and electronic equipment – Product requirements –
Part 3-126: Rectangular connectors – Detail specification for 5 pole power
connectors for industrial environments with push-pull locking**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 31.220.10

ISBN 978-2-8322-5235-2

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

CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	11
4 Technical information	12
4.1 Systems of levels.....	12
4.1.1 Performance levels	12
4.1.2 Compatibility levels, according to IEC 61076-1:2006.....	12
4.2 Classification into climatic categories.....	12
4.3 Clearance and creepage distances	12
4.4 Current-carrying capacity	12
4.5 Marking.....	12
5 Dimensional information	13
5.1 Common features.....	13
5.2 Reference system	13
5.3 Engagement (mating) information	13
5.3.1 Engaging (mating) direction.....	13
5.3.2 Perpendicular to the engaging (mating) direction.....	13
5.3.3 Inclination.....	13
5.4 Fixed connectors.....	14
5.4.1 Dimensions.....	14
5.4.2 Electrical terminations	16
5.5 Free connectors.....	16
5.5.1 Dimensions.....	16
5.5.2 Electrical terminations	18
5.6 Accessories.....	18
5.7 Mounting information for connectors	19
5.8 Gauges.....	19
5.8.1 Sizing gauges and retention force gauges	19
5.8.2 Mechanical function, engaging/separating/insertion/withdrawal force gauges	20
5.8.3 Probes.....	20
5.8.4 Contact resistance gauge	20
5.8.5 Test panel (for voltage proof test).....	20
5.8.6 Test panel (for EMC/crosstalk, etc.).....	20
6 Characteristics	20
6.1 General.....	20
6.2 Pin assignment and other definitions.....	21
6.3 Classification into climatic categories.....	21
6.4 Electrical characteristics	21
6.4.1 Creepage and clearance distances	21
6.4.2 Voltage proof.....	21
6.4.3 Current-carrying capacity.....	22
6.4.4 Contact and shield resistance.....	23
6.4.5 Insulation resistance.....	23

6.4.6	Impedance.....	24
6.4.7	Transmission characteristics.....	24
6.5	Mechanical characteristics.....	24
6.5.1	Mechanical operation.....	24
6.5.2	Effectiveness of connector coupling devices.....	24
6.5.3	Engaging and separating forces (or insertion and withdrawal forces).....	24
6.5.4	Contact retention in insert.....	24
6.5.5	Polarizing and coding method.....	25
6.6	Other characteristics.....	25
6.6.1	Vibration (method half-sine).....	25
6.6.2	Shock (method half-sine).....	26
6.6.3	Degree of protection provided by enclosures (IP-code).....	26
6.6.4	Screen and shielding properties.....	26
6.6.5	Static load test.....	26
6.7	Environmental aspects.....	26
6.7.1	Marking of insulation material (plastics).....	26
6.7.2	Design/use of material.....	26
7	Test schedule.....	26
7.1	General.....	26
7.1.1	Overview.....	26
7.1.2	Climatic category.....	27
7.1.3	Creepage and clearance distances.....	27
7.1.4	Arrangement for contact resistance measurement.....	27
7.1.5	Arrangement for dynamic stress tests.....	28
7.1.6	Arrangement for testing static load, axial.....	28
7.1.7	Wiring of specimens.....	28
7.2	Test schedules.....	29
7.2.1	Basic (minimum) test schedule (Table 11).....	29
7.2.2	Full test schedule.....	29
7.3	Test procedures and measuring methods.....	41
7.4	Pre-conditioning.....	41
7.5	Wiring and mounting of specimens.....	42
7.5.1	Wiring.....	42
7.5.2	Mounting.....	42
	Figure 1 – View showing mating direction.....	13
	Figure 2 – Fixed connector with male contacts.....	14
	Figure 3 – Free connector with female contacts.....	17
	Figure 4 – Mounting information – panel cut-out outline.....	19
	Figure 5 – Gauge dimensions.....	20
	Figure 6 – Connector de-rating curve.....	23
	Figure 7 – Stress test arrangement.....	25
	Figure 8 – Contact resistance arrangement.....	28
	Table 1 – Climatic category.....	12
	Table 2 – Dimensions of fixed connector.....	15
	Table 3 – Dimensions of free connector.....	18

Table 4 – Mounting dimensions	19
Table 5 – Gauge dimensions.....	20
Table 6 – Ratings of connectors.....	21
Table 7 – Rated impulse voltage – Pollution degree.....	22
Table 8 – Voltage proof.....	22
Table 9 – Number of mechanical operations	24
Table 10 – Total insertion force.....	25
Table 11 – Basic tests	29
Table 12 – Number of test specimens and contacts	30
Table 13 – Test group P	31
Table 14 –Test group AP	32
Table 15 – Test group BP	35
Table 16 – Test group CP	36
Table 17 –Test group DP	37
Table 18 – Test group EP	38
Table 19 – Test group FP	39
Table 20 – Test group GP	40
Table 21 – Test group JP	41
Table 22 – Test group KP	41

Withholding

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC
EQUIPMENT – PRODUCT REQUIREMENTS –****Part 3-126: Rectangular connectors – Detail specification for 5 pole
power connectors for industrial environments with push-pull locking**

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.

A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public.

IEC PAS 61076-3-126 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

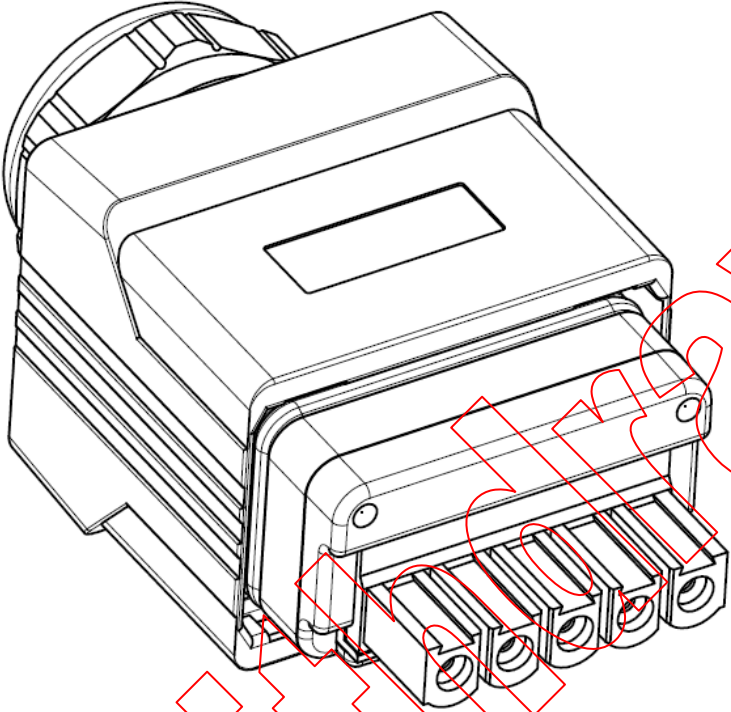
Draft PAS	Report on voting
48B/2593/PAS	48B/2612/RVC

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned may transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of 3 years starting from the publication date. The validity may be extended for a single period up to a maximum of 3 years, at the end of which it shall be published as another type of normative document, or shall be withdrawn.

Withdrawn

INTRODUCTION

<p>IEC SC 48B – Electrical connectors</p> <p>Specification available from: IEC General secretariat or from the addresses shown on the inside cover.</p>	<p>IEC 61076-3-126 Ed.1</p>
<p>ELECTRONIC COMPONENTS</p> <p>DETAIL SPECIFICATION in accordance with IEC 61076-1</p>	
	<p>Rectangular connectors</p> <p>Detail specification for power connectors for industrial environments with push-pull locking</p> <p>Male and female connectors</p> <p>Male and female contacts</p> <p>Rewirable – Non-rewirable</p>
	<p>Free cable connectors</p> <p>Straight and right angle connectors</p> <p>Fixed connectors</p> <p>Flange mounting</p> <p>Single hole mounting</p>