IEC 60794-5

Edition 2.0 2014-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Optical fibre cables –
Part 5: Sectional specification – Microduct cabling for installation by blowing

Câbles à fibres optiques –
Partie 5: Spécification intermédiaire – Câblage en micro-conduits pour installation par soufflage

IEC 60794-5:2014-10(en-fr)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

L

ICS 33.180.10

ISBN 978-2-8322-1877-8

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

Part 5: Sectional specification – Microduct cabling for installation by blowing

FOREWORD

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International Standard IEC 60794-5 has been prepared by subcommittee 86A Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition, published in 2006, and constitutes a technical revision.

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

- the addition of constructional requirements, including a reference to IEC 60794-3 for microduct optical fibre cables;
- the specification has been streamlined by cross-referencing IEC 60794-1-1.

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The text of this standard is based on the following documents:

CDV	Report on voting
86A/1588/CDV	86A/1620/RVC

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60794 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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- replaced by a revised edition, or
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OPTICAL FIBRE CABLES –

Part 5: Sectional specification – Microduct cabling for installation by blowing

1 Scope

This part of IEC 60794, which is a sectional specification, specifies the requirements of microduct optical fibre cables, microduct fibre units, microducts and protected microducts for installation by blowing for outdoor and/or indoor use.

The microduct optical fibre cables and microduct fibre units utilize the structure of the microduct or protected microducts to support installation and to provide protection over the design lifetime.

These products may be used for applications such as communication and transmission networks, transmission, telephone and data processing equipment, control and monitoring applications.

The cabling structures described in this sectional specification are uniquely designed to facilitate and take advantage of installation by blowing into microducts.

IEC TR 62839-1 gives rules to build an environmental declaration, if needed.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60304, *Standard colours for insulation for low-frequency cables and wires*

IEC 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

IEC 60793-1-44, *Optical fibres – Part 1-44: Measurement methods and test procedures – Cut-off wavelength*

IEC 60793-2, *Optical fibres – Part 2: Product specifications – General*

IEC 60794-1-1, *Optical fibre cables – Part 1-1: Generic specification – General*

IEC 60794-3, *Optical fibre cables – Part 3: Outdoor optical fibre cables – Sectional specification*

3 Terms, definitions, symbols and abbreviations

For the purposes of this document, the terms, definitions, symbols and abbreviations are given in IEC 60794-1-1.

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4 Construction

4.1 General

The intent is that the microduct optical fibre cables, microduct fibre units, microducts and protected microducts shall be designed and manufactured for a predicted operating lifetime of at least 20 years. The tests of this specification are intended to assess the performance of cables as manufactured and under agreed ageing and performance-limit tests. These tests are not intended to define end-of-life performance, but may be used as agreed between the customer and the supplier to predict such performance. It shall be possible to install or remove the microduct optical fibre cable or microduct fibre unit in or from the microducts by blowing during the operational lifetime. When considering recovering a product for potential re-use, care shall be taken to minimize stress on the product and that the product is carefully handled and packaged in accordance with the supplier's guidelines. Good practice would also indicate that all products are appropriately tested if re-deployed. The materials in the microduct optical fibre cable, microduct fibre unit, microduct or protected microduct shall not present a health hazard within its intended use.

4.2 Optical fibre

4.2.1 General

The optical fibre shall conform to the requirements of IEC 60793-2. The fibre type shall be agreed between the customer and supplier.

4.2.2 Attenuation

4.2.2.1 Attenuation coefficient

The typical maximum attenuation coefficient of a microduct optical fibre cable or microduct fibre unit is dependent upon the fibre type(s) used. Typical values are given in IEC 60794-1-1. Particular values may be agreed between the customer and supplier.

The attenuation coefficient shall be measured in accordance with IEC 60793-1-40.

4.2.2.2 Attenuation discontinuities

Point discontinuities shall conform to IEC 60794-1-1.

4.2.3 Cut-off wavelength

For single-mode fibre, the cabled fibre cut-off wavelength λ_{cc} shall be less than the operational wavelength, when measured in accordance with IEC 60793-1-44, and shall conform to IEC 60794-1-1.

4.2.4 Fibre colouring

If the primary coated fibres are coloured for identification, the coloured coating shall be readily identifiable throughout the lifetime of the cable and shall be a reasonable match to IEC 60304.

4.2.5 Polarization mode dispersion (PMD)

Cabled single-mode fibre PMD shall conform to IEC 60794-1-1.

4.3 Microduct

A microduct is a small, flexible lightweight tube with an outer diameter typically less than 16 mm.

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