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Fibre reinforced polymer (FRP) reinforcement for concrete structures —

Part 2: Specifications of CFRP strips

Polymère renforcé par des fibres (PRF) pour l'armature du béton —
Partie 2: Spécifications des bandes en PRFC

Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Fibre reinforced polymer (FRP) reinforcement for concrete structures —

Part 2:
Specifications of CFRP strips

1 Scope

This document specifies requirements for unidirectional carbon fibre-reinforced polymer (CFRP) strips as external-bonded reinforcements on the concrete substrate. This document is applicable for the CFRP strips that:

— consist of carbon fibre and thermoset resin;

— are manufactured by pultrusion method;

— have a carbon fibre fraction over 60 % by volume; and

— have a thickness within 3 mm.

This document specifies the methodologies to express the mechanical properties as characteristic values, appearance and dimensions, and sampling test.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10406-3, *Fibre-reinforced polymer (FRP) reinforcement of concrete — Test methods — Part 3: CFRP strips*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
straightness
lateral warped deformation perpendicular to the longitudinal axis of strip

3.2
initial inspection
inspection carried out by the manufacturer of the product for the initial production from the relevant production apparatus, and the cases of change in the production method, product design and raw materials to be used

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3.3
periodic inspection
inspection carried out by the manufacturer of the product on every production lot

4 Appearance, dimensions, and straightness

4.1 Appearance

CFRP strips shall not have defects such as crack (mechanical defect), whitening (incomplete curing), blistering (mechanical defect), etc.

NOTE Examples of defects are shown in Table 1.

Table 1 — Examples of defects

External/Internal crack	Whitening	Blistering
		

4.2 Dimensions

4.2.1 Nominal width, thickness, cross sectional area and length

The nominal width, nominal thickness, nominal cross-sectional area and nominal length of CFRP strips shall be agreed between interested parties.

4.2.2 Tolerance for width, thickness and cross-sectional area

The tolerances for width, thickness and cross-sectional area in the sampling test specified in Clause 6 shall be in accordance with Table 2.

Table 2 — Tolerance of cross-sectional dimensions

Item	Tolerance
Width	No less than nominal width
Thickness	±10 % of the nominal thickness
Cross-sectional area	No less than nominal cross-sectional area

4.2.3 Tolerance for length

The tolerance for length in the sampling test specified in Clause 6 shall be in accordance with Table 3.

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