



**International  
Standard**

**ISO 10406-1**

**Fibre-reinforced polymer (FRP)  
reinforcement of concrete — Test  
methods —**

**Part 1:  
FRP bars**

**Third edition  
2025-09**

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Published in Switzerland

# Contents

Page

<b>Foreword</b>	<b>v</b>
<b>Introduction</b>	<b>vi</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms, definition, and symbols</b>	<b>1</b>
3.1 Terms and definitions	1
3.2 Symbols	4
<b>4 General provision concerning test pieces</b>	<b>5</b>
<b>5 Test method for physical properties</b>	<b>6</b>
5.1 Cross-sectional area	6
5.1.1 Test pieces	6
5.1.2 Test procedure	6
5.1.3 Calculations	7
5.1.4 Test report	7
5.2 Fibre volume fraction	8
5.2.1 Test pieces	8
5.2.2 Test procedure	8
5.2.3 Calculations	8
5.2.4 General	8
5.2.5 Fibre content	9
5.2.6 Fibre volume fraction	9
5.2.7 Test report	9
5.3 Coefficient of thermal expansion	10
5.3.1 Test pieces	10
5.3.2 Testing device	10
5.3.3 Test method	10
5.3.4 Calculations	11
5.3.5 Test report	11
<b>6 Test method for short-term mechanical properties</b>	<b>12</b>
6.1 Tensile properties	12
6.1.1 Test pieces	12
6.1.2 Test equipment	12
6.1.3 Test procedure	13
6.1.4 Test temperature	13
6.1.5 Calculations	13
6.1.6 Test report	15
6.2 Bond strength	16
6.2.1 Test pieces	16
6.2.2 Testing machine and devices	18
6.2.3 Test method	18
6.2.4 Calculations	19
6.2.5 Test report	19
6.3 Anchorages and couplers	21
6.3.1 Test pieces	21
6.3.2 Test temperature	22
6.3.3 Test method	22
6.3.4 Calculations	22
6.3.5 Test report	22
6.4 Transverse shear strength	23
6.4.1 Test pieces	23
6.4.2 Testing machine and devices	24
6.4.3 Test temperature	24
6.4.4 Test method	24

6.4.5	Calculations.....	25
6.4.6	Test report.....	25
6.5	Flexural tensile properties.....	26
6.5.1	Test pieces.....	26
6.5.2	Testing unit and devices.....	26
6.5.3	Test method.....	27
6.5.4	Calculations.....	27
6.5.5	Test report.....	28
7	<b>Test method for durability.....</b>	<b>29</b>
7.1	Alkali resistance.....	29
7.1.1	Test pieces.....	29
7.1.2	Immersion in alkaline solution.....	30
7.1.3	External appearance and mass change.....	30
7.1.4	Tensile method.....	31
7.1.5	Calculations.....	31
7.1.6	Test report.....	31
8	<b>Test method for long-term mechanical properties.....</b>	<b>32</b>
8.1	Long-term relaxation.....	32
8.1.1	Test pieces.....	32
8.1.2	Testing frame and devices.....	32
8.1.3	Test temperature.....	33
8.1.4	Test method.....	33
8.1.5	Calculations.....	34
8.1.6	Test report.....	34
8.2	Tensile fatigue strength.....	35
8.2.1	Test pieces.....	35
8.2.2	Testing machine and devices.....	35
8.2.3	Test temperature.....	35
8.2.4	Test method.....	36
8.2.5	Calculations.....	36
8.2.6	Test report.....	37
8.3	Creep rupture strength.....	37
8.3.1	Test pieces.....	37
8.3.2	Testing frame and devices.....	37
8.3.3	Test temperature.....	38
8.3.4	Tensile capacity.....	38
8.3.5	Test method.....	38
8.3.6	Calculations.....	39
8.3.7	Test report.....	40

## Foreword

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This document was prepared by Technical Committee ISO/TC 71, *Concrete, reinforced concrete and pre-stressed concrete*, Subcommittee SC 6, *Non-traditional reinforcing materials for concrete structures*.

This third edition cancels and replaces the second edition (ISO 10406-1:2015), which has been technically revised.

The main changes are as follows:

- inclusion of thermoplastic resin for FRP bars;
- addition of the test method for fibre volume fraction of FRP bars;
- revision of test methods for alkaline resistance, long-term relaxation, tensile fatigue strength, and creep failure strength to enhance rigor and comprehensiveness;
- increase in the minimum number of test specimens from 3 to 5 for all test methods to ensure data reliability.

A list of all parts in the ISO 10406 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Fibre reinforced polymer (FRP) bars, renowned for their high strength, lightweight nature, excellent bond behaviour, and superior durability, serve a pivotal role in reinforcing new constructions and rehabilitating existing reinforced concrete structures. As the global use of FRP bars continues to expand, the need for standardized test methods has become paramount. Unlike steel, FRP bars exhibit anisotropic behaviour and their performance is influenced by the type of fibres, resin matrix, and manufacturing processes. As such, rigorous and consistent test methods are essential to accurately evaluate the physical properties, mechanical properties, long-term durability, and reliability of FRP bars in various environmental and loading conditions.

This document provides a comprehensive framework for evaluating the physical properties, mechanical properties, durability, and long-term performance of FRP bars. It aims to promote uniformity in test methods globally, thereby ensuring consistency in product quality and facilitating international trade. By establishing these test methods, this document supports engineers, manufacturers, and regulators in the design, production, and certification of FRP reinforcement systems for safe and sustainable infrastructure.

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