



Standard Specification for Condition 3 Bicycle Frames¹

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INTRODUCTION

This specification defines a set of requirements for Condition 3 bicycle frames. Condition 3 is a vehicle usage classification defined in Classification **F2043** indicating the type of riding and surface condition intended by design. Included are specifications for establishing loads and other criteria to be used with the matching test method.

1. Scope

- 1.1 This specification establishes testing requirements for the structural performance properties of Condition 3 bicycle frames.
- 1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.
- 1.3 This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

- 2.1 *ASTM Standards:*²
 - F2043** Classification for Bicycle Usage
 - F2711** Test Methods for Bicycle Frames

3. Terminology

- 3.1 *Definitions:*
 - 3.1.1 *bicycle frame, n*—structural member that supports the seat with rear connection for the rear wheel, front connection via the head tube for the fork and lower connection for the crank/pedal assembly.

4. Classification

- 4.1 *Condition 3 Bicycle Frame*

5. Performance Requirements

- 5.1 The bicycle frame shall be tested in accordance with the following tests from Test Methods **F2711**:
 - 5.1.1 *Horizontal Loading Fatigue Test*—The frame shall be tested and each must complete a minimum 50 000 cycles with a cyclic load of 1200 N tensile and 600 N ~~compressive~~ compressive with no cracks or fractures.
 - 5.1.2 *Vertical Loading Fatigue Test*—The frame shall be tested and each must complete a minimum 50 000 cycles with a cyclic load of 1200 N to 120 N load in the compressive ~~direction~~ direction with no cracks or fractures.
 - 5.1.3 *Impact Strength* ~~Falling Mass Test~~—The frame shall be tested with a drop height of 360 ~~mm~~ mm; the frame shall not fracture and the permanent set of the frame and fork shall be less than 40 mm.
 - 5.1.4 *Falling Frame Test*—The frame shall be tested with **Mass1** of 30 kg, **Mass2** of 10 kg, **Mass3** of 50 kg, and a drop height of 300 mm. The frame shall not fracture and the permanent set of the frame and fork shall be less than 40 mm.

¹ This specification is under the jurisdiction of ASTM Committee **F08** on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee **F08.10** on Bicycles.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.