



Standard Specification for Stationary Upright and Recumbent Exercise Bicycles and Upper Body Ergometers¹

This standard is issued under the fixed designation F1250; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

The goal of this specification is to promote proper design and manufacturing practices for stationary upright and recumbent exercise bicycles and upper body ergometers. Through these specifications, this specification aims to assist designers and manufactures in reducing the possibility of injury when these products are used in accordance with the operational instructions.

The equipment user must recognize, however, that a standard alone will not necessarily prevent injuries. Like other physical activities, exercise involving stationary upright and recumbent exercise bicycles and upper body ergometers involves the risk of injury, particularly if the equipment is used improperly or not properly maintained. In addition, users with physical limitations should seek medical advice and instruction from the fitness facility prior to using this equipment. Certain physical conditions or limitations may preclude some persons from using this equipment properly and without increasing the risk of serious injury.

1. Scope

1.1 This standard establishes parameters for the design and manufacture of stationary exercise bicycle equipment as defined in 3.2.16.

1.2 It is the intent of this standard to specify fitness products for use only by an individual age 13 and older.

1.3 This standard is to be used in conjunction with Specification F2276 and Test Methods F3023.

1.4 This specification is intended to reduce the demonstrated hazards associated with the use of stationary exercise bicycles.

1.5 This specification is written to provide reasonable safety standards for the user of stationary exercise bicycles during storage, movement, entry, use, and exit from the product.

1.6 This standard does not apply to mechanisms that convert road bikes to indoor stationary cycles.

1.7 The values stated in SI units are to be regarded as standard. The values in parentheses are for information only.

1.8 *This standard does not purport to address all the safety concerns, if any, associated with its use. It is the responsibility*

of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 *ASTM Standards:*²

F1749 Specification for Fitness Equipment and Fitness Facility Safety Signage and Labels

F2276 Specification for Fitness Equipment

F2571 Test Methods for Evaluating Design and Performance Characteristics of Fitness Equipment

F3023 Test Methods for Evaluating Design and Performance Characteristics of Stationary Upright and Recumbent Exercise Bicycles and Upper Body Ergometers

3. Terminology

3.1 The terms listed below are unique to this specification. For terms not defined below, refer to Specification F2276.

3.2 *Definitions:*

3.2.1 *back support, n*—the part of the user support means that comes in contact with the users back during operation.

3.2.2 *consumer exercise bicycle, n*—stationary exercise bicycle intended for use by one person or family unit in a home

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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.

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3.2.3 *cycle, n*—movement of a point or load from a starting position and back to the same starting position. The cycle being executed through the full range of intended motion.

3.2.4 *direct drive exercise bicycle, n*—stationary exercise bicycles wherein the flywheel is directly coupled to the pedals without the use of a freewheel mechanism. These exercise bicycles are often used in a “class” or group institutional setting.

3.2.5 *ergometer, n*—(1) a stationary exercise bicycle-like device where the user is positioned in an upright seated position and engages the crank mechanism by hand, or (2) upper body cardio vascular exercise units that may or may not be equipped with an apparatus for measuring the work performed by exercising.

3.2.5.1 *Discussion*—The pedals are replaced by handles as shown in Fig. 1. The unit may have a back support, similar to a recumbent bike, that supports the user’s back.

3.2.6 *flywheel, n*—a heavy wheel for opposing and moderating, by its inertia, fluctuations of speed in the exercise bicycle on which it is mounted.

3.2.7 *freewheel, n*—a mechanism that is designed to disengage the flywheel from the pedal mechanism in one direction.

3.2.8 *handlebar, n*—the means that are provided to a user to enhance balance and stability by partially or substantially supporting the user’s weight with the user’s arms.

3.2.9 *handlebar stem, n*—connection between the handlebar and frame provided to adjust the height of the handlebar.

3.2.10 *institutional exercise bicycle, n*—stationary exercise bicycle intended for use by numerous persons in a commercial or institutional, as opposed to a consumer or residential, environment.

3.2.11 *pedal, n*—a device designed to support the foot while the user is performing the exercise as intended by the manufacturer, or while the user mounts or dismounts the equipment.

3.2.12 *recumbent exercise bicycle, n*—a stationary exercise bicycle where the user is positioned in a seated position with their back supported against a back support.

3.2.13 *seat post tube, n*—member or component used to adjust the height of the seat.

3.2.14 *seat sleeve tube, n*—the part of the frame where the seat post is inserted.

3.2.15 *seat support, n*—the part of the seat post where the seat pad is secured or mounted.

3.2.16 *stationary exercise bicycle, n*—stationary training equipment that positions a user’s upper or lower body in an upright or recumbent position to turn a directly coupled or connected flywheel or freewheel crank mechanism with the user’s feet.

4. Equipment Types

4.1 This specification covers the design and manufacture of stationary exercise bicycles as defined in 3.2.16 and illustrated in Figs. 2-4, as well as the design and manufacture of upper body ergometers as defined by 3.2.5 and illustrated in Fig. 1.

5. Design and Construction Requirements

5.1 Seat and Seat Post:

5.1.1 *Insertion Depth*—The seat post tube shall have a permanent line indicating the minimum insertion depth of at least 1.5 times the largest cross section dimension (for example, diameter or longest dimension of the inserted seat tube) into the seat sleeve tube. A mark is not required if the minimum insertion depth is provided by the design.



FIG. 1 Upper Body Ergometer

FIG. 2 Recumbent Bike