



Standard Test Methods for Evaluating Design and Performance Characteristics of Selectorized Strength Equipment¹

This standard is issued under the fixed designation F 2277; 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 these test methods is to provide reliable and repeatable methods for the evaluation of selectorized strength equipment. Users of these machines must recognize, however, that conformance to a standard will not necessarily prevent injuries. Like other physical activities, exercise involving strength equipment involves the risk of injury, particularly if the equipment is not maintained or used properly.

1. Scope

1.1 These test methods specify procedures and apparatus used for testing and evaluating selectorized strength equipment for compliance to Specification F 2216. Both design and operational parameters will be evaluated. Where possible and applicable, accepted test methods from other recognized bodies will be used and referenced.

1.2 *Requirements*—Selectorized strength equipment is to be tested for all of the following parameters:

- 1.2.1 Stability,
- 1.2.2 Edge and corner sharpness,
- 1.2.3 Tube ends,
- 1.2.4 Weight stack travel,
- 1.2.5 Weight stack selector pin retention,
- 1.2.6 Function of adjustments and locking mechanisms,
- 1.2.7 Handgrip design and retention,
- 1.2.8 Assist mechanisms,
- 1.2.9 Foot supports,
- 1.2.10 Rope and belt systems:
 - 1.2.10.1 Static load,
 - 1.2.10.2 End fitting design,
- 1.2.11 Chain drive design,
- 1.2.12 Pulley design:
 - 1.2.12.1 Rope pulley design,
 - 1.2.12.2 Belt pulley design,
- 1.2.13 Entrapment zones,
- 1.2.14 Pull in points,
- 1.2.15 Weight stack enclosure design,
- 1.2.16 Loading and deflection:

- 1.2.16.1 Intrinsic loading and associated deflection,
- 1.2.16.2 Extrinsic loading and associated deflection,
- 1.2.16.3 Endurance loading, and
- 1.2.17 Documentation and warnings verification.

1.3 *This standard does not purport to address all of 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:

- F 963 Consumer Safety Specifications on Toy Safety²
- F 1749 Specification for Fitness Equipment and Fitness Facility Safety Signage and Labels²
- F 2216 Specification for Selectorized Strength Equipment²

2.2 European Standards:

- EN 957–1 Stationary Training Equipment—Part 1: General Safety Requirements and Test Methods³
- EN 957–2 Stationary Training Equipment—Part 2: Strength Training Equipment, Additional Specific Safety Requirements and Test Methods³

2.3 UL Standard:

- UL 1439 UL Standard for Safety Tests for Sharpness of Edges on Equipment⁴

2.4 ANSI Standard:

¹ This test method is under the jurisdiction of ASTM Committee F08 on Sports Equipment and Facilities and is the direct responsibility of Subcommittee F08.30 on Fitness Products.

Current edition approved May 10, 2003. Published June 2003.

² *Annual Book of ASTM Standards*, Vol 15.07.

³ Available from CEN Management Centre, 36 rue de Stassart, B-1050, Brussels, Belgium.

⁴ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

