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Cycles — Luggage carriers for bicycles — Concepts, classification and testing

*Cycles — Porte-bagages pour bicyclettes — Conception, classification et
essais*



Reference number
ISO 11243:1994(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11243 was prepared by Technical Committee ISO/TC 149, *Cycles*, Subcommittee SC 1, *Cycles and major sub-assemblies*.

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Cycles — Luggage carriers for bicycles — Concepts, classification and testing

1 Scope

This International Standard specifies dimensions and performance requirements for luggage carriers intended for mounting above the rear wheels of bicycles.

NOTE 1 This International Standard is the first of two complementary Standards. The second will be ISO 11247, *Cycles — Requirements for child seats*.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4628-3:1982, *Paints and varnishes — Evaluation of degradation of paint coatings — Designation of intensity, quantity and size of common types of defect — Part 3: Designation of degree of rusting*.

ISO 9227:1990, *Corrosion tests in artificial atmospheres — Salt spray tests*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 carrier: Device mounted above the rear wheel of a bicycle that is exclusively designed for carrying luggage or children in child-seats.

3.2 carrier platform: Essentially flat part of the carrier upon which loads may be placed or fixed.

NOTE 2 If the carrier is equipped with more than one such area, only the uppermost is considered.

3.3 length, L : Maximum overall length of the carrier measured between the front and rear extremities, including means of attachment to the bicycle measured up to the attachment point, but excluding accessories such as reflectors.

4 Classification

Carriers are divided into four load classes:

- **Load class 10:** Carriers having a load capacity of 10 kg for light luggage (not suitable for the transport of children).
- **Load class 18:** Carriers having load capacity of 18 kg for medium touring luggage or child-seats up to 15 kg capacity.
- **Load class 25:** Carriers having load capacity of 25 kg for heavy touring luggage or child-seats up to 15 kg or 22 kg capacity.
- **Load class S:** Carriers for special loads up to a rated capacity to be specified by the manufacturer of the carrier.

5 Designation

Designation of a luggage carrier of load class 18:

Luggage carrier ISO 11243-18

6 Requirements

6.1 General

Dangerous edges that may come into contact with parts of the body of the user or transported child shall be neither sharp nor designed such that injuries can arise when the bicycle is used correctly. Spring ends shall be rounded or fitted with protective caps.

6.2 Dimensions

The dimensions of luggage carriers are not specified, except for the platform widths of load classes 18 and 25, to which a child-seat could be attached. The width of these carriers shall be between 120 mm and 175 mm.

6.3 Structure

When attached to a fixture resembling a bicycle (or a bicycle) and if necessary assembled in accordance with the manufacturer's instructions, the carrier parts shall be firmly joined and fixed. After the tests according to clauses 7 to 9, the carrier shall neither show visible signs of fracture, nor any deformation of the carrier greater than given in 8.2 and 8.3.

6.4 Materials

6.4.1 Metals

All metal parts shall be protected against corrosion. After the salt spray test in clause 10, no such part of the carrier shall exhibit corrosion greater than that indicated in ISO 4628-3 by Ri 2 in the case of ferrous metal parts (either painted or plated), or Ri 3 in the case of nonferrous or Zn-plated parts (those tending to produce "white" corrosion).

6.4.2 Plastics

Plastics materials shall be stabilized against UV radiation and resistant to ozone, heat (65 °C) and cold (– 20 °C).

7 Strength under high and low temperature

7.1 General

These tests are applied to carriers of plastics or metal and plastics to determine whether extreme tempera-

tures have an adverse effect on the strength and the form of the carriers. The low temperature drop test simulates the impact of the carrier against the ground when the bicycle to which it is fitted falls over. These tests are also regarded as a preparation for the static strength and the mechanical durability tests.

7.2 High temperature test

Store the carrier for a minimum of 3 h in a chamber with a temperature of 65 °C. Remove and immediately examine the carrier for any damage or distortion which affects the function or safety of the carrier.

7.3 Low temperature test

Store the carrier for a minimum of 3 h in a chamber with a temperature of – 20 °C. Remove and immediately examine the carrier for damage or distortion which affects the function or safety of the carrier.

7.4 Low temperature drop test

Store the carrier for a minimum of 3 h in a chamber with a temperature of – 20 °C. Remove and immediately drop the carrier from a height of 1 m onto a concrete floor, in an orientation chosen to produce the worst result. Examine the carrier for damage or distortion which affects the function or safety of the carrier.

8 Strength and stiffness: static load test

8.1 Mounting method

Secure the carrier to a rigid fixture which resembles the part of the bicycle to which the luggage carrier is designed to fit. The orientation of this fixture shall be adjusted so that the carrier platform becomes horizontal with any adjustable means of carrier attachment fully extended.

Tighten the fasteners used to mount the carrier in accordance with the manufacturer's instructions.

8.2 Vertical

Apply a load by means of a rigid cylinder, diameter 110 mm, positioned transversely upon the carrier platform either

- a) at a distance $L/2$ from the rear of the carrier; or

- b) at a distance of not less than 50 mm, chosen to produce the greatest deflection (see figure 1).

Apply a load equal to three times the rated capacity of the carrier for 1 min. After removal of this load, the deflection of the carrier at its point of application shall not exceed 5 mm.

NOTE 3 Where the carrier under test has a support in the middle of the platform, another point of application may be chosen for the load in order to find the worst case.

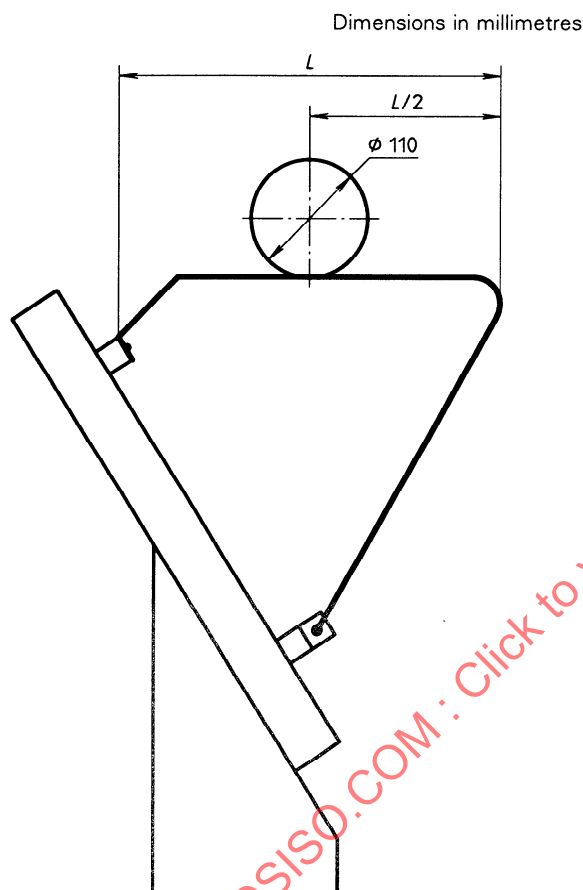


Figure 1 — Typical arrangement for vertical load test

8.3 Lateral

Apply a transverse force, F , equal to the rated capacity of the carrier (for example, load class 18 = 180 N) for 1 min to the side of the carrier platform at a point 50 mm from the rear of the carrier (see figure 2). The transverse deflection at the point of application of the force shall not exceed 15 mm measured while the force is applied. The permanent deflection, measured after the removal of this force, shall not exceed 5 mm.

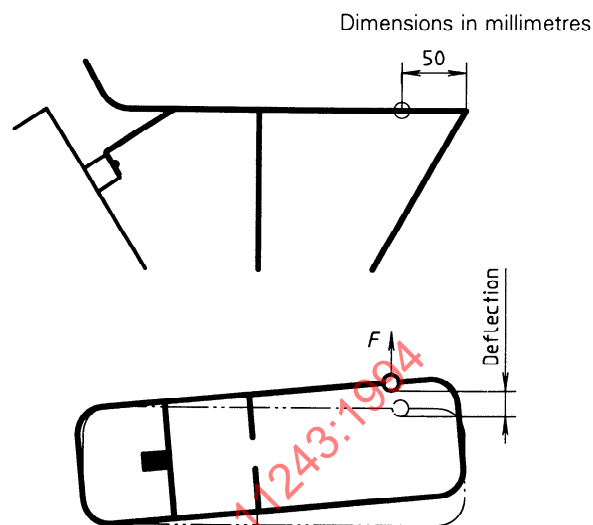


Figure 2 — Lateral load test

9 Strength: dynamic load tests

9.1 General

Secure the carrier to a rigid fixture with the platform horizontal and any adjustable means of attachment fully extended, as described in 8.1.

Attach a weight equal to the rated capacity to the carrier platform. The weight shall be clamped to each side of the top of the carrier platform, at a distance D from the rear of the carrier as given in 9.2 or 9.3. The centre of mass of this weight shall coincide with this position and also lie within 10 mm of the centreline of the top of the platform. The total width of this weight shall not exceed the carrier platform width by more than 100 mm.

An arrangement which meets these requirements, comprising a transverse bar, clamped by a pair of U-bolts to the carrier, to the projecting ends of which are attached appropriate additional balanced masses, is illustrated in figure 3.

Vibrate the carrier with a sinusoidal motion, according to each set of conditions given in 9.2 and 9.3, for the specified number of cycles, or until failure if this occurs first.

NOTE 4 If the natural vibration frequency of the carrier corresponds to the frequency of the test, so that resonance occurs, the frequency may be reduced by 10 % and the amplitude increased by 23 %.

Dimensions in millimetres

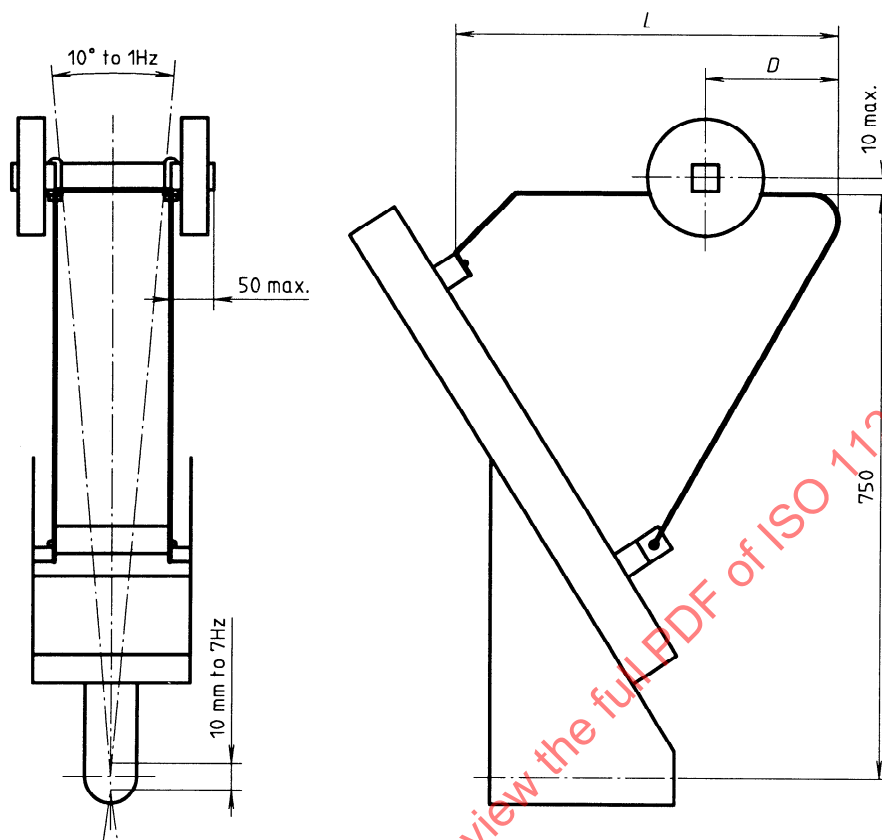


Figure 3 — Dynamic tests

9.2 Vertical

Attach the weight at a position $D = L/2$ and vibrate the carrier vertically at a frequency of 7 Hz through a total stroke of 10 mm, for 50 000 cycles.

9.3 Lateral

Attach the weight at a position $D = 100$ mm and vibrate the carrier laterally at 1 Hz, by swinging it from side to side, through a total arc of 10° about a horizontal longitudinal axis 750 mm below the carrier platform, for 50 000 cycles.

10 Salt spray test

Subject the carrier to a 48 h neutral salt spray test in accordance with ISO 9227.

11 Marking

The carrier shall be durably marked in a position that is visible when the carrier is assembled with

- a) the load capacity in kg (10, 18, 25 or S + capacity);
- b) the name or symbol of the manufacturer.

NOTE 5 Marking the carrier with the number of this International Standard is optional.

12 Instructions

Any carrier that is not supplied already mounted to a bicycle shall be provided with instructions for assembling it to the bicycle. These instructions shall contain at least the following information: