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**Cycles — Luggage carriers for bicycles  
— Requirements and test methods**

*Cycles — Porte-bagages pour bicyclettes — Exigences et méthodes*

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## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 149, *Cycles*, Subcommittee SC 1, *Cycles and major sub-assemblies*.

This second edition cancels and replaces the first edition (ISO 11243:1994), which has been technically revised.

## Introduction

This International Standard has been developed in response to demand throughout the world, and the aim has been to ensure that luggage carrier manufactured in compliance with it will be as safe as is practically possible. The tests have been designed to ensure the strength and durability of the luggage carrier, demanding high quality throughout and consideration of safety aspects from the design stage onwards.

The scope has been limited to safety considerations and has specifically avoided standardization of components.

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# Cycles — Luggage carriers for bicycles — Requirements and test methods

## 1 Scope

This International Standard specifies safety and performance requirements for the design and testing of luggage carriers intended for mounting (with or without tool) above and adjacent to the wheels of cycles and lays down guide lines for instructions on the use and care of such luggage carriers.

This International Standard does not apply to removable luggage (for example, handlebar bags or baskets that are not permanently attached).

Toy carrier intended to be mounted on bicycles for young children in the scope of ISO 8098 are not covered by this International Standard.

## 2 Normative references

There are no normative references cited in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1 cycle

vehicle that has at least two wheels and is propelled solely or mainly by the muscular energy of the person on that vehicle, in particular by means of pedals

### 3.2 luggage carrier

device, including containers such as baskets, that is mounted and permanently attached above and/or adjacent to the rear wheel(s) (in the case of a rear luggage carrier) or front wheel(s) (in the case of a front luggage carrier) of a cycle and that is exclusively designed for carrying luggage or children in child-seats

### 3.3 luggage carrier platform

flat part of the *luggage carrier* (3.2) upon which loads may be placed or fixed, or the flat top rail from which panniers may be hung, or the bottom part of a container

Note 1 to entry: The bottom part of a container, for example a basket.

### 3.4 luggage carrier platform length

*L*  
maximum overall length of the *luggage carrier platform* (3.3)

### 3.5 visible crack

crack which results from a test, wherein that crack is visible to the naked eye

### 3.6 fracture

unintentional separation into two or more parts

3.7

**toy carrier**

carrier with a part intended for containing a toy of a maximum weight of 1 kg

3.8

**integrated frame luggage carrier**

*luggage carrier* (3.2) which is permanently attached

Note 1 to entry: Luggage carrier welded to the frame.

3.9

**normal rear carrier**

rear carrier supported by fixings to the bicycle frame close to the rear wheel axle

3.10

**frame-mounted beam carrier**

rear carrier that is structurally a cantilever, fixed to the bicycle frame in front and/or above the rear wheel

Note 1 to entry: It may also be fixed to the seat post, in addition to the frame, but receives no support from the bicycle frame near to the axle of the rear wheel.

3.11

**seat-post mounted beam carrier**

rear carrier that is structurally a cantilever, fixed to the seat post of the bicycle without additional fixings to the frame

3.12

**above wheel front carrier**

front carrier with a platform upon which loads can be placed above the front wheel

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3.13

**low-load front carrier**

front carrier that is exclusively designed for carrying a pair of panniers, where the “platform” is a pair of rails (from which the panniers hang), one each side of the wheel and not more than 200 mm above the lower points of attachment of the carrier near to the axle of the front wheel

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3.14

**front mounted container**

container such as a basket that is mounted and permanently attached above the front wheel of a bicycle and that is exclusively designed for carrying luggage

3.15

**maximum load capacity**

maximum load that can be carried dependent upon the class of luggage carrier

Note 1 to entry: For load under 27 kg, the mark will warn the user that the product is not suitable for the transportation of a child seat.

Note 2 to entry: Maximum load is defined in [Table 1](#).

3.16

**electrically power assisted cycle**

**EPAC**

cycle, equipped with pedals and an auxiliary electric motor, which cannot be propelled exclusively by means of this auxiliary electric motor, except in the start-up assistance mode

4 Classification

The manufacturer shall classify the carrier with the maximum load capacity for which it is intended, taking into consideration any restrictions laid down in [Table 1](#).



If the carrier is intended to carry a child seat, designed to clamp onto the platform of a normal rear luggage carrier and classified for 9 kg to 22 kg (see EN 14344), the maximum load capacity of the luggage carrier shall be at least 27 kg.

In [Table 1](#), the maximum limit (if any) for the load capacity is indicated for each type of luggage carrier that falls within the scope of this International Standard. The applicable requirements and test methods differ according to the type and maximum load capacity.

**Table 1 — Maximum load capacity for the types of luggage carrier**

Type of luggage carrier	Rear luggage carriers			Front luggage carriers		Front-mounted container
	Normal	Beam		Above wheel	Low-load	
		Seat post-mounted	Frame-mounted			
Maximum load capacity, kg	no limit	10	27	10	18	10
NOTE 1 For transporting heavier load, the maximum load specified in <a href="#">Table 1</a> can be exceeded provided that the bicycle sustain such load.						
NOTE 2 Maximum load capacity does not include the battery weight if so equipped.						

NOTE Examples of carrier configurations are shown in [Annex C](#).

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## 5 Requirements and test methods

### 5.1 General

In general, for static and fatigue tests, each type of test shall be conducted on a new test sample, but if only one test sample is available, it is permissible to conduct all of the tests on the same sample with the sequence of testing in the order: fatigue tests, static tests.

In the strength tests, all components shall be in the fully-finished condition.

The test frequency shall be stated in all fatigue test reports.

The luggage carrier shall be tested using the connecting interface position(s) and type(s) according to the luggage carrier manufacturer's specifications.

The luggage carrier shall be tested with all accessories provided (e.g. lock, pumps, etc.).

For luggage carrier intended to be fitted on an EPAC and designed to include a battery, the test shall be performed with the maximum battery load [see [6.1 b\)](#)] in addition to the mass defined in [Clause 4](#).

For integrated luggage carrier, all clauses apply except [5.8](#), [5.9](#) and [5.10](#).

### 5.2 Tolerances

Unless otherwise stated, the following tolerances shall be used:

- all forces shall have an accuracy of 0/+5 %;
- all masses shall have an accuracy of  $\pm 1$  %;
- all dimensions shall have an accuracy of  $\pm 1$  mm;
- all time measurements shall have an accuracy of  $\pm 1$  s;
- all angles shall have an accuracy of  $\pm 1^\circ$ ;

— all frequencies and linear stroke shall have an accuracy of  $\pm 5\%$ .

### 5.3 Sharp edges

Exposed edges that could come into contact with the rider's or a transported person's hands, legs, etc., during normal riding or normal handling and normal maintenance 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.

### 5.4 Security of safety-related fasteners

#### 5.4.1 Security of screws

Any screws used in the internal assembly of the luggage carrier shall be provided with suitable locking devices, for example, lock-washers, lock-nuts or stiff nuts.

#### 5.4.2 Minimum breaking torque

The minimum breaking torque of screws for the fastening of the luggage carrier to the cycle shall be at least 50 % greater than the manufacturer's recommended tightening torque.

NOTE For example, mechanical and physical properties of bolts are specified in ISO 898-1.<sup>[1]</sup>

#### 5.4.3 Fixation elements

Fixation elements to the bicycle are not covered by this International Standard unless provided by the luggage carrier manufacturer. In this case, fixation elements shall be used during testing.

### 5.5 Crack detection methods

Standardized methods may be used to emphasize the presence of cracks where visible cracks are specified as criteria of failure in tests specified in this International Standard.

NOTE For example, suitable dye-penetrant methods are specified in ISO 3452-1, ISO 3452-2, ISO 3452-3 and ISO 3452-4.<sup>[2][3][4][5]</sup>

### 5.6 Dimensions

The dimensions of luggage carriers are not specified, except as follows.

Normal rear luggage carriers to which a child-seat could be attached (see [Clause 4](#)) shall have a luggage-carrier platform width of 175 mm maximum.

### 5.7 Protrusions

This requirement is intended to address the hazards associated with the users of bicycles falling on projections or rigid components on a bicycle, possibly causing internal injury or skin puncture.

A screw thread that is an exposed protrusion shall be limited to a protrusion length of one major diameter of the screw beyond the internally threaded mating part.

### 5.8 Assembly

When attached to a fixture resembling a bicycle (or attached to a bicycle) and if necessary assembled in accordance with the luggage carrier manufacturer's instructions, the luggage carrier parts shall be firmly joined and fixed using the fixing devices provided or specified by the manufacturer.

## 5.9 Rear luggage carriers — Provision for lighting

The rear aspect of any rear luggage carrier not equipped with an integral rear lamp and reflector can be equipped with a bracket or brackets, either as an integral part or separate accessory (or accessories) to allow the fitting of a rear lamp and reflector.

When this requirement is satisfied by the provision of separate accessories, these accessories should be included when the luggage carrier is sold.

## 5.10 Strength under high and low temperature

### 5.10.1 General

The requirements in [5.10.2](#) apply only to carriers of plastics or metal and plastics.

### 5.10.2 Requirement

When tested by the method described in [5.10.3](#) and [5.10.4](#), there shall be no fractures or visible cracks in any part of the luggage carrier, or any distortion which affects the function or safety of the luggage carrier.

### 5.10.3 High temperature test — Test method

Store the luggage carrier for  $4\text{ h} \pm 1\text{ h}$  in a chamber at a temperature of  $65\text{ °C} \pm 5\text{ °C}$ . Remove and immediately examine the luggage carrier to check if the requirements in [5.10.2](#) are fulfilled.

### 5.10.4 Low temperature test — Test method

Store the luggage carrier for  $4\text{ h} \pm 1\text{ h}$  in a chamber at a temperature of  $-20\text{ °C} \pm 1\text{ °C}$ . Remove the luggage carrier from the chamber and within 15 s, drop the carrier from a height of 1 m onto a smooth, level, concrete floor. Drop the luggage carrier in such a way that the side hits the floor (the luggage carrier is in horizontal position). Immediately examine the luggage carrier to check if the requirements in [5.10.2](#) are fulfilled.

## 5.11 Dynamic load tests

### 5.11.1 Requirement

When tested by the methods described in [5.11.2](#), [5.11.3](#) and [5.11.4](#), there shall be no fractures or visible cracks in any part of the luggage carrier. If the carrier is made of plastics or metal and plastics, it shall be submitted to the tests in [5.10](#) before being tested according to [5.11](#), [5.12](#) and [5.13](#).

### 5.11.2 General test method

Secure the luggage carrier to a rigid fixture which resembles the part of the bicycle to which the luggage carrier is designed to fit, using the fastening devices and screws supplied or specified by the manufacturer. The orientation of the fixture shall be adjusted so that the luggage-carrier platform becomes horizontal with any adjustable means of luggage carrier attachment fully extended. If other adjustments are possible, they shall be made so that the luggage carrier is attached to the rig in a way that resembles the most onerous situation that can occur in practice.

Tighten the fasteners used to mount the luggage carrier with the torque recommended by the manufacturer.

The clamping shall not deform the tube or platform.