

# INTERNATIONAL STANDARD

**ISO  
2416**

Third edition  
1992-05-01

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## Passenger cars — Mass distribution

*Voitures particulières — Répartition des masses*

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ISO 2416:1992

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Reference number  
ISO 2416:1992(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 2416 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Sub-Committee SC 6, *Terms and definitions of dimensions and masses*.

This third edition cancels and replaces the second edition (ISO 2416:1976), of which it constitutes a technical revision.

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## Passenger cars — Mass distribution

### 1 Scope

This International Standard defines the distribution of the transportable mass for passenger cars, and specifies

- a conventional average mass for passengers, and
- a conventional mass for luggage.

The total of the masses thus defined represents nominal design pay mass for a given vehicle.

This International Standard applies to passenger cars as defined in ISO 3833.

### 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 3832:1991, *Passenger cars — Luggage compartments — Method of measuring reference volume.*

ISO 3833:1977, *Road vehicles — Types — Terms and definitions.*

ISO 6549:1980, *Road vehicles — Procedure for H-point determination.*

### 3 Terms and conventional values

#### 3.1 Conventional mass of passenger, $m_p$

The conventional mass of a passenger without luggage is fixed at  $m_p = 68$  kg.

#### 3.2 Conventional mass of luggage, $m_b$

The conventional mass of luggage, for each passenger, is fixed at  $m_b = 7$  kg.

#### 3.3 Nominal design pay mass, $m_t$

The nominal design pay mass,  $m_t$ , shall meet the following inequality:

$$m_t \geq (m_p + m_b) \times n$$

where  $n$  is the number of seating places as defined by the manufacturer.

#### 3.4 Nominal mass of transportable goods, $m_{tr}$

The nominal mass of transportable goods,  $m_{tr}$ , is determined by the following formula:

$$m_{tr} = m_t - m_p \times n_o$$

where

$n_o$  is the number of occupied seats;

$m_t$  is as defined in 3.3;

$m_p$  is as defined in 3.1.

### 4 Mass distribution

#### 4.1 General requirements

None of the permissible axle loads shall be exceeded.

#### 4.2 Passenger cars with invariable volume of luggage compartment

##### 4.2.1 Passengers

The centre of respective masses is situated, in accordance with ISO 6549, as specified in either a) or b):

- a) **non-adjustable seats:** vertically through a point located at 50 mm in front of the point R of the corresponding seat;
- b) **adjustable seats:** vertically through a point located at 100 mm in front of the point R of the corresponding seat or at the nearest locked position.

**4.2.2 Luggage**

The centre of the conventional luggage mass is situated on a vertical passing through the middle of the projection on a horizontal plane of the maximum usable length of the luggage compartment situated in the median longitudinal plane of the vehicle. See figure 1.

**4.3 Passenger cars with variable volume of luggage compartment**

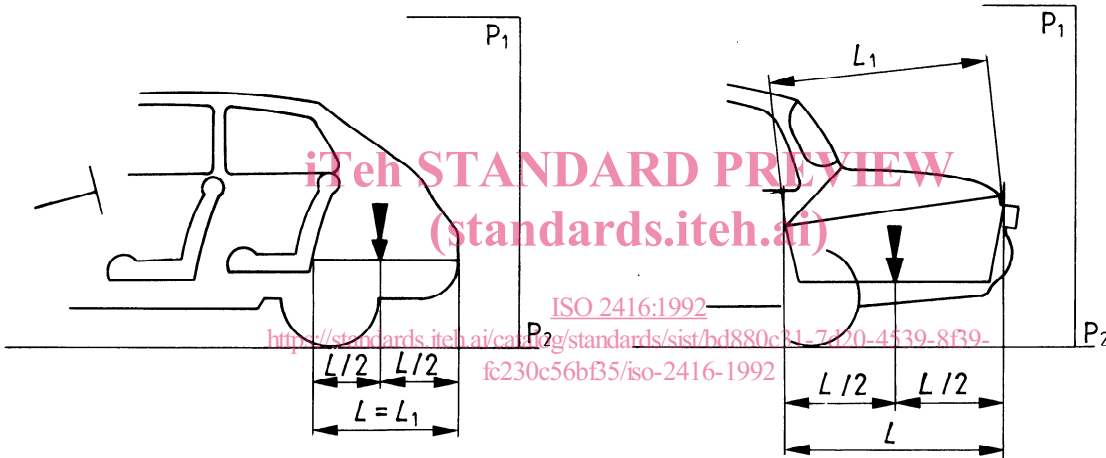
In the case of passenger cars with foldable rear seats which increases the capacity of the luggage compartment, the centre of the transportable masses is situated as in 4.3.1 and 4.3.2.

**4.3.1 Passengers**

The centre of the masses of passengers is located in accordance with 4.2.1.

**4.3.2 Transportable goods**

Location of the centres of masses of transportable goods both with folded and with unfolded rear seats is defined by the manufacturer.



**Key**

$P_1$  = the median longitudinal plane of the vehicle

$P_2$  = the horizontal plane of projection

$L_1$  = the maximum usable length of the luggage compartment (this compartment is limited to the reference volume as defined in ISO 3832)

$L$  = the length of the horizontal projection of  $L_1$

**Figure 1**

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**Descriptors:** road vehicles, motor vehicles, private cars, specifications, weight (mass), load distribution.

Price based on 2 pages

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