

DRAFT INTERNATIONAL STANDARD

ISO/DIS 13988

ISO/TC 22/SC 33

Secretariat: DIN

Voting begins on:
2020-09-09

Voting terminates on:
2020-12-02

Passenger vehicle wheels — Clip balance weight and rim flange nomenclature, test procedures and performance requirements

Roues pour véhicules particuliers — Nomenclature des masselottes d'équilibrage clippées et des rebords de jantes, méthodes d'essai et exigences de performance

ICS: 43.040.50

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/DIS 13988](#)

<https://standards.iteh.ai/catalog/standards/sist/cfd64a8-429b-4223-ad1e-f43f675c774/iso-dis-13988>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.



Reference number
ISO/DIS 13988:2020(E)

© ISO 2020

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/DIS 13988

<https://standards.iteh.ai/catalog/standards/sist/cfd64a8-429b-4223-ad1e-f43f675c774/iso-dis-13988>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Rim flange types.....	5
5 Test procedure for clip on balance weight.....	6
5.1 Preparation of clip on balance weight for test.....	6
5.1.1 Selection of balance weights.....	6
5.1.2 Measurement of key dimensions of balance weights.....	6
5.1.3 Marking of balance weights.....	6
5.2 Preparation of the wheel for clip on balance weight testing.....	6
5.2.1 Cleaning.....	6
5.2.2 Marking.....	6
5.2.3 Measurement of rim flange dimensions.....	6
5.3 Installation of clip on balance weight.....	6
5.4 Tangential Test for clip on balance weight.....	7
5.4.1 General.....	7
5.4.2 Test equipment.....	7
5.4.3 Test sequence.....	8
5.4.4 Performance requirements tangential force.....	8
5.5 Axial removal test for clip on balance weight.....	8
5.5.1 Test equipment.....	8
5.5.2 Test sequence.....	8
5.5.3 Performance requirement axial force.....	10
6 Test Procedure for adhesive balance weights for all size weights and wheels.....	10
6.1 Test Equipment.....	10
6.2 Wheel preparation.....	11
6.3 Balance weight selection and installation.....	12
7 Shear adhesion test.....	12
7.1 Test Procedure.....	12
7.2 Performance.....	12
8 Pull off adhesion test.....	12
8.1 Test procedure.....	12
8.2 Performance.....	13

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. 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. 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/TC22/SC33/WG5.

This WD13988 adds adhesive balance weights to the existing standard which covers clip on weights only. Nomenclature for the balance weight and test procedures and performance requirements for the adhesive weights are included.

Introduction

This International Standard addresses clip and adhesive balance weights used on passenger car wheels. It provides general features and configurations of the clip balance weights, general features of the adhesive balance weights and general features and configurations for rim dimensions relevant to clip on weights and defines terms used to describe these features.

This International Standard provides test procedures to evaluate weight retention on the wheel.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/DIS 13988](https://standards.iteh.ai/catalog/standards/sist/cfd64a8-429b-4223-ad1e-f43f675c774/iso-dis-13988)

<https://standards.iteh.ai/catalog/standards/sist/cfd64a8-429b-4223-ad1e-f43f675c774/iso-dis-13988>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/DIS 13988

<https://standards.iteh.ai/catalog/standards/sist/cfd64a8-429b-4223-ad1e-f43f675c774/iso-dis-13988>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/DIS 13988

<https://standards.iteh.ai/catalog/standards/sist/cfd64a8-429b-4223-ad1e-f43f675c774/iso-dis-13988>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/DIS 13988

<https://standards.iteh.ai/catalog/standards/sist/cfd64a8-429b-4223-ad1e-f43f675c774/iso-dis-13988>

Passenger vehicle wheels — Clip balance weight and rim flange nomenclature, test procedures and performance requirements

1 Scope

This International Standard specifies procedures and minimum performance requirements for testing without tyres the retention of balance weights for use on wheels for passenger vehicles. It also specifies general features for configurations of clip balance weights, rim flanges for light alloy and steel wheels intended for use on passenger cars and adhesive balance weights. Alternative materials and geometries can be considered in the future.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3911, *Wheels and rims for pneumatic tyres — Vocabulary, designation and marking*

ISO 4000-1, *Passenger car tyres and rims — Part 1: Tyres (metric series)*

ISO 4000-2, *Passenger car tyres and rims — Part 2: Rims*

ISO 4223-1, *Definitions of some terms used in the tyre industry — Part 1: Pneumatic tyres*

3 Terms and definitions

For the purposes of this document, the definitions given in ISO 4223-1, ISO 4000-1, ISO 4000-2, ISO 3911 and the following apply.

3.1

Clip Balance weight assembly

Assembly of the weight and the clip, which is intended for mounting on the rim flange to balance the tyre/wheel assembly about its axis of rotation and thus minimize vibrations due to the rotation of the tyre/wheel assembly

Note 1 to entry: Figure 1 gives the terminology and nomenclature of balance weight assembly

3.1.1

Weight

Material of a specified mass with contours to conform to the surface of the rim flange. The material is recommended to be free of lead.

3.1.2

Clip

Specially formed metal affixed to the weight to mount the balance weight on the rim flange

3.1.3

Spur

Optional part of a clip that protrudes from its surface interfacing with the rim flange

3.1.4

Balance weight coating

Non-corrosive material coating to avoid corrosion

EXAMPLE Polyester, nylon.

3.1.5

Balance weight key dimensions

Dimensions that are essential for fitting the balance weight on the rim flange

3.1.6

Balance weight size

Size determined by the magnitude of the balance weight mass, expressed in grams

3.1.7

Balance weight retention force

Static force required to remove the balance weight from the rim flange, expressed in newtons

3.1.8

Balance weight retention

Ability of the balance weight to maintain its secure position on the rim flange in various service conditions

3.1.9

Interference

Measure of balance weight press fit computed as the difference between the flange thickness and the weight gap

3.2

Adhesive balance weight assembly

Assembly of the weight portion and the adhesive portion, which is intended for mounting on the rim to balance the tyre/wheel assembly about its axis of rotation and thus minimize vibrations due to the rotation of the tyre/wheel assembly

Note 1 to entry: Figure 1A gives the terminology and nomenclature of the adhesive balance weight assembly

3.2.1

Weight portion

Portion of the weight that provide mass for balancing the wheel. The material is recommended to be free of lead.

3.2.2

Tape portion

A double sided adhesive tape with 3 layers: 1) adhesive for the weight portion, 2) a backing material, and 3) adhesive for attachment to the wheel surface

3.3

Rim flange

Part of the rim where the clip balance weight is mounted

Note 1 to entry: Figure 2 gives the terminology and nomenclature of rim flange features for light alloy wheels.

Note 2 to entry: Figure 3 gives the terminology and nomenclature of rim flange features for wheels with roll formed rim.

Note 3 to entry: Figure 4 gives the terminology and nomenclature of rim flange features for fullface wheels.

Note 4 to entry: Figure 5 gives the terminology and nomenclature of rim flange features for clad wheels.

3.3.1

Rim flange key dimensions

Dimensions that are essential for fitting clip balance weight on the rim flange

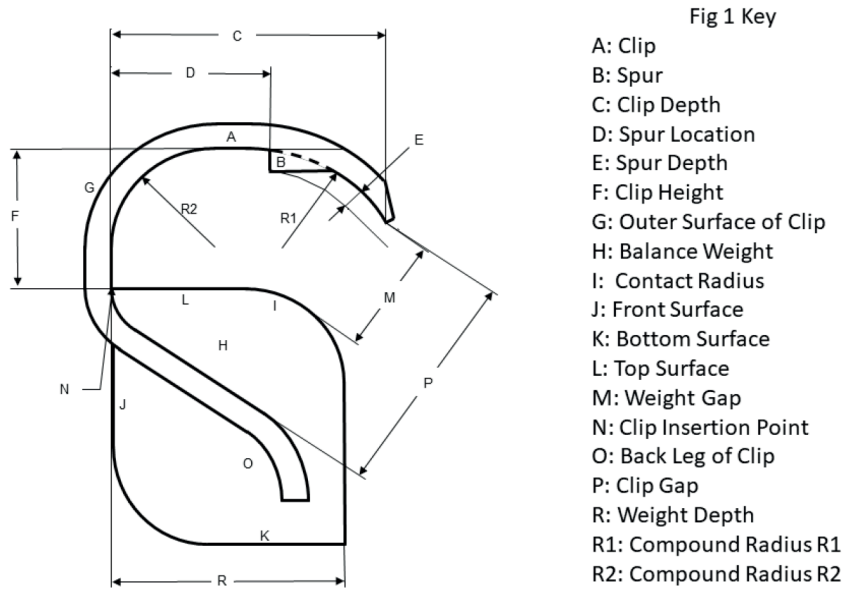


Fig 1 Key

- A: Clip
- B: Spur
- C: Clip Depth
- D: Spur Location
- E: Spur Depth
- F: Clip Height
- G: Outer Surface of Clip
- H: Balance Weight
- I: Contact Radius
- J: Front Surface
- K: Bottom Surface
- L: Top Surface
- M: Weight Gap
- N: Clip Insertion Point
- O: Back Leg of Clip
- P: Clip Gap
- R: Weight Depth
- R1: Compound Radius R1
- R2: Compound Radius R2

Figure 1 — Clip balance weight assembly terminology
(standards.iteh.ai)

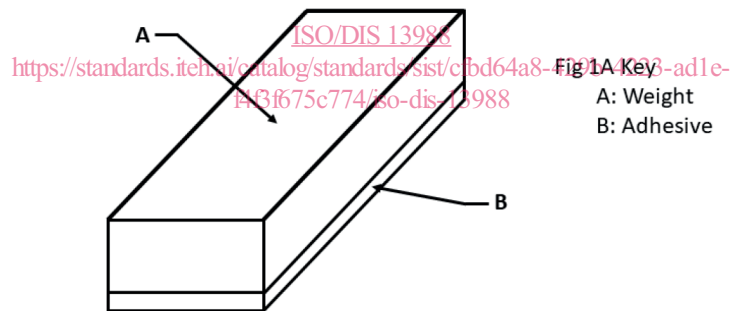


Fig 1A Key
A: Weight
B: Adhesive

Figure 1 — A - Adhesive balance weight assembly terminology