



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 3103.3-2020

Tolerances for fasteners - Plain washers

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Foreword

GB/T 3103 "Tolerances for fasteners" contains the following parts:

- GB/T 3103.1, Tolerances for fasteners - Bolts, screws and nuts;
- GB/T 3103.2, Tolerances for fasteners - Bolts, screws and nuts for fine mechanics;
- GB/T 3103.3, Tolerances for fasteners - Plain washers;
- GB/T 3103.4, Tolerances for fasteners - Bolt / nut assemblies for service temperatures from -200°C ~ +700°C.

This Part is Part 3 of GB/T 3103.

This Part is drafted in accordance with the rules defines in GB/T 1.1-2009.

This Part replaces GB/T 3103.3-2000 "Tolerances for fasteners - Plain washers".

Compared with GB/T 3103.3-2000, the main technical changes in this Part are as follows:

- modified the scope (see Clause 1);
- updated the normative references (see Clause 2);
- added Clause 3 Codes (see Clause 3);
- added product grade F (see Clause 1 and Clause 4);
- added chamfer tolerance (see Clause 4);
- added standard tolerance grades IT11 and IT14; deleted IT16 (see Table

A.1);

- added h13 and H12 limit deviations (see Table A.2 and Table A.3).

This Part uses redrafting method to modify and adopt ISO 4759-3:2016

"Tolerances for fasteners - Part 3: Washers for bolts, screws and nuts - Product grades A, C and F".

The technical difference and reason between this Part and ISO 4759-3:2016 are as follows:

- in the normative references, used Chinese standards instead of International standards (see Clause 2), so as to conform to the basic standards of fasteners in China.

Tolerances for fasteners - Plain washers

1 Scope

This Part of GB/T 3103 specifies the tolerances of plain washers of which the nominal diameter is 1mm~150mm, the product grades are A, C and F, are used for combined connection of bolts, screws, studs and nuts.

This Part is applicable to non-combined and combined plain washers, standard and non-standard plain washers.

This Part can be used for non-plain washers. But it does not include all tolerances of non-plain washers.

This Part is not applicable to conical washers.

Grades F and A washers are used for grades A and B bolts, screws, studs and nut products. Grade C washers are used for grade C bolts, screws, studs and nut products.

NOTE: Product grade refers to the tolerance range corresponding to the size of the product type (product grade F corresponds to fine tolerances, product grade A corresponds to precise tolerances, and product grade C corresponds to large tolerances).

Annex A gives standard tolerances and limit deviations of shafts and holes in GB/T 1800.1 and GB/T 1800.2.

2 Normative references

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

GB/T 1182, Geometrical product specifications (GPS) - Geometrical tolerancing - Tolerances of form, orientation, location and run-out (GB/T 1182-2018, ISO 1101:2017, IDT)

GB/T 16671, Geometrical product specifications (GPS) - Geometrical tolerancing - Maximum material requirement (MMR), least material requirement (LMR) and reciprocity requirement (RPR) (GB/T 16671-2018, ISO 2692:2014, MOD)

3 Codes

The following codes apply to this document.

c1 Internal chamfer height, mm

c2 External chamfer height, mm

d1 Aperture, mm

d2 Shaft diameter, mm

e1 Radial difference between the aperture (the area subject to punching shear) and the end of gasket bearing surface where brittle fracture occurs

e2 Radial difference between the outer diameter (the area subject to punching and shearing) and the end of the gasket bearing surface where brittle fracture occurs

heff Effective height of washer, mm

t Nominal thickness of washer, mm

teff Effective thickness of washer, mm

t1 The part that meets the specified tolerance of aperture d1

t2 The part that meets the specified tolerance of outer diameter d2

y Concentricity, mm

z Flatness (deflection), mm

4 Tolerances

See Table 1 for tolerances of product grades A, C and F washers.

Unless otherwise specified, the tolerances specified in this Part apply to the dimensions of washers before surface treatment.

Only when there is a legitimate technical reason, the tolerance of washers specified in this Part is allowed to be different from the product standard. When this Part is different from the tolerance specified in the product standard, the latter shall prevail.

The provisions and representation methods of shape and position tolerances are in accordance with GB/T 1182 and GB/T 16671.

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