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

GB/T 3480.6-2018

**Calculation of load capacity of spur and helical gears -- Part 6:
Calculation of service life under variable load**

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Foreword

GB/T 3480 "Calculation of Bearing Capacity of Spur Gears and Helical Gears" is intended to include the following five parts.

- Part 1. Basic principles, overview and general impact factors;
- Part 2. Calculation of tooth surface contact fatigue (pitting) strength;
- Part 3. Calculation of gear bending strength;
- Part 5. Strength and quality of materials;
- Part 6. Calculation of service life under variable load conditions.

This part is the sixth part of GB/T 3480.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the translation method equivalent to ISO 6336-6.2006 "Spur gear and helical gear load capacity calculation Part 6. Variable load

Lifetime calculation under conditions.

This section incorporates the technical errata content of ISO 6336-6.2006/Cor.1.2007, which contains provisions that have been passed outside

The vertical double line (||) of the side margin is marked.

This section also made the following editorial changes.

- Replace "A.2.2" at the end of A.2 of ISO 6336-6.2006 with "A.3.2";
- Change the "ISO 6336-2.2006 5.3.3.2" in the first paragraph of C.6 of ISO 6336-6.2006 to "ISO 6336-2.2006"

5.3";

--- Replace "Figure 7" in the first sentence of C.8 in ISO 6336-6.2006 with "Figure 4";

--- Change "Nii" in ISO 6336-6.2006/Cor.1.2007 to "Ni" (two places);

--- Change the "800" at the bottom of Y2 in Figure C.1 to "200".

This part is proposed and managed by the National Gear Standardization Technical Committee (SAC/TC52).

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1 Scope

This part of GB/T 3480 specifies the calculation standard for gear life (or safety factor of required life) under variable load conditions and

Related technical information. The calculation method for the bearing capacity of spur and helical gears specified in GB/T 3480 can also be applied to other similar

gear.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 3374.1-2010 Gear terms and definitions Part 1. Geometric definitions (ISO 1122-1.1998, IDT)

ISO 6336-1.2006 Calculation of load capacity of spur and helical gears - Part 1. Basic principles, overview and general influence factors

(Calculation of load capacity of spur and helical gears - Part 1. Basic principles, introduction and General influence factors)

ISO 6336-2.2006 - Calculation of load capacity of spur and helical gears - Part 2. Calculation of strength of tooth contact fatigue (pitting)

[Calculation of load capacity of spur and helical gears - Part 2. Calculation of surfacedurability (pitting)]

ISO 6336-3:2006 - Calculation of load capacity of spur and helical gears - Part 3. Calculation of gear bending strength (Calculation of load capacity of spur and helical gears - Part 3. Calculation of tooth bending strength)

3 terms, definitions, symbols and abbreviations

Terms, definitions, symbols and abbreviations defined in ISO 6336-1:2006 and GB/T 3374.1-2010 apply to this document.

4.1 Use factor

When no load spectrum is available, the use factor K_A can be determined from empirical data from similar machines. At this point, the use factor K_A depends on

The operating mode of the prime mover and the working machine.

See Appendix B for the value of K_A .

4.2 Load spectrum and stress load spectrum

Load fluctuations caused during operation, during start-up, or near critical speeds can cause stress in the gear train to change.

Chemical. The magnitude and frequency of load changes depend on the work machine, prime mover (or motor), and the mass elastic characteristics of the drive train.

To determine the variable load (or variable stress), the following methods can be used.

---Measure the working load on a specific testing machine;