

ICS 21.200
CCS J 17



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

GB/T 19936.2-2024

**Gears - FZG test procedures - Part 2: FZG step load test
A10/16.6R/120 for relative scuffing load-carrying capacity of
high EP oils**

(English Translation)

Issued on: March 15, 2024

Implemented on: July 1, 2024

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Preface	
Introduction	
1 Scope	
2 Normative references	
3 Terms and Definitions	
4 Failure criteria	
5 Method Overview	
5.1 General principles	
5.2 Precision	
6 Test consumables	
6.1 Test gear	
6.2 Cleaning fluid	
7 Devices	
7.1 FZG spur gear test bench	
7.2 Heating device	
7.3 Tachometer	
7.4 Balance	
8 Preparation of the device	
9 Test Procedure	
10 Results Record	
Appendix A (Informative) A10 FZG test gear tooth surface changes (tooth surface damage)	
Appendix B (Informative) FZG Test Report Table	
Appendix C (Informative) FZG gear test bench maintenance inspection items	
Reference	

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 2 of GB/T 19936 "Gear FZG test procedure". GB/T 19936 has been published in the following parts.

--- Part 1: Relative bonding load-bearing capacity of oil products FZG test method A/8.3/90;

--- Part 2: Relative bonding load-bearing capacity of high extreme pressure oils FZG step loading test A10/16.6R/120.

This document is equivalent to ISO 14635-2:2023 "Gear FZG test procedure Part 2: Relative bonding load of high extreme pressure oil" Capacity FZG step loading test A10/16.6R/120".

The following minimal editorial changes were made to this document.

--- Change "see Table 3" in the footnote of Table 2 to "see Table 4".

Introduction

The types of gear damage affected by lubricants include scuffing, low-speed wear, surface pitting and micropitting fatigue damage.

In the design process of gears, it is necessary to consider the use of specific lubricants and the relevant characteristic parameters of oil products during service.

GB/T 19936 "Gear FZG Test Procedure" describes the determination of lubricant related properties.

GB/T 19936 is intended to consist of three parts.

--- Part 1: Relative scuffing load-bearing capacity of oils FZG1) Test method A/8.3/90. Describes the use of type A test gears, FZG test method for relative bonding load capacity of oil products under the conditions of 8.3m/s pitch line speed and 90°C initial oil temperature.

For industrial gear and marine gear lubricants.

--- Part 2: Relative bonding load capacity of high extreme pressure oil FZG step loading test A10/16.6R/120. Describes the use of A10 type test gear, 16.6m/s pitch line speed (reverse), 120°C initial oil temperature, high extreme pressure oil relative bearing Load-carrying capacity FZG test method. Mainly used for vehicle gear lubricants.

--- Part 3: FZG test method A/2.8/50 for relative scuffing load carrying capacity and wear characteristics of semi-fluid gear greases.

A test method for determining the relative scuffing load carrying capacity and wear characteristics of semifluid greases in enclosed gear drives is described.

Inspection procedures.

1) FZG is the Gear Research Center at the Technical University of Munich, Germany.

Other FZG test methods for determining low-speed wear, micropitting, and pitting load capacity of gears are in a new stage of development and may be used in the future.

Added to GB/T 19936 as an updated component.

Gear FZG test procedure Part 2.

Relative bonding load capacity of high extreme pressure oil FZG Step loading test
A10/16.6R/120

1 Scope

This document describes a test method based on the FZG power closed test machine to determine the high extreme pressure oil by the scuffing damage on the gear surface.

This document is suitable for evaluating the potential load-carrying capacity of lubricants used in the majority of vehicles and stationary installations for highly stressed cylindrical gears.

Scuffing capacity. This document is not intended to assess the potential scuffing capacity of lubricants used in hypoid gears subject to high loads, such as Other methods may be used for evaluation.

Note: This method is technically equivalent to CECL-84-02.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

ISO 1328-1:1995) Cylindrical gears - ISO tooth surface tolerance classification system - Part 1: Definition and permissible values of tooth surface deviations (Cy-

2) Superseded by ISO 1328-1:2013.

Note: GB/T 10095.1-2022 Cylindrical gears ISO tooth surface tolerance classification system Part 1: Definition and allowable values of tooth surface deviation (ISO 1328-1.

2013, IDT)

ISO 14635-1 Gear FZG test procedure Part 1: Relative scuffing capacity of oils FZG test method A/Note. GB/T 19936.1-2005 Gear FZG test procedure Part 1: Relative scuffing load capacity of oils FZG test method A/8.3/90 (ISO 14635-1:2000,IDT) ISO 21920-2 Geometrical Product Specifications (GPS) Surface structure profile method Part 2: Terms, definitions and surface structure

3 Terms and definitions

The following terms and definitions apply to this document.