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

GB/T 16461-2016

Replacing GB/T 16461-1996

Tool-life testing with single-point turning tools

单刃车削刀具寿命试验

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard replaces GB/T 16461-1996 "single point turning tool life test." this standard compared with GB/T 16461-1996, in addition to editorial changes outside the main technical differences are as follows.

- Remove the ISO foreword;
- Remove the foreword statement Appendix nature, increasing the draft rules are based on standards for the preparation, increasing the technical differences correspond to international standards;
- Revised introduction;
- Modify the list of normative references;
- Modify the terms of the narrative;
- Remove the body of the statement of the nature of the Appendix;
- Appendix B Table B.1 --- the content of "S" from "0.02 to 0.035" to "maximum 0.035";
- Remove Appendix F F.1 "Overview";
- References section instead of using the applicable country file.

This standard uses redrafted law revision using ISO 3685:1993 "single point turning tool life test." this standard and ISO 3685:1993 is the main technical difference.

--- Workpiece reference materials used in GB/T 699 in steel or 45 GB/T 9439 HT250 cast iron, see 4.1 and Appendix B B.1 and B.2;

--- Tool material selected from the high-speed steel GB/T 9943 non-coating with non-cobalt high speed steel (W18Cr4V and W6Mo5Cr4V2) or cobalt high speed steel (W6Mo5Cr4V2Co5 and W2Mo9Cr4VCo8), see 5.1.2;

Delete F --- in Appendix F.1.

This standard and ISO 3685:1993 editorial differences as follows.

- Remove the preface;
- Revised introduction;
- Scope statement has been adjusted;
- Modify the normative references, instead of the international standard cited by the applicable national standards of;
- References section instead of using the applicable country file.

This standard and ISO 3685:1993 exist technical differences in terms of these differences has been involved in a single vertical line through its outer margin position (I) were marked.

The standard proposed by China Machinery Industry Federation.

This standard tool by the National Standardization Technical Committee (SAC/TC91) centralized.

This standard was drafted. Chengdu Tool Research Institute Limited.

Introduction

This standard covers can be used for single-point turning tool laboratories and manufacturing units recommended life testing. When the cutting tool, workpiece material, cutting fluid or cutting parameters were compared, these recommendations aimed at harmonizing steps to improve the reliability and comparability of test results. As close as possible to these objectives, including the recommended reference material standards, can be employed both as far as practicable.

In addition, the standard recommended values may be used to help determine the recommended cutting data or determine the value of constraints and processing characteristics, such as cutting force, the machined surface characteristic values and the like in the form of chips. For these purposes, even though the already recommended values were given certain parameters, it may be used as a variable.

The recommended standard test conditions intended to be used on steel and cast iron specimen with normal microstructure for turning test the overall high-speed steel cutting tools, carbide or ceramic tools. However, this standard may be appropriate modifications, for example, it is used for other workpiece material or special tools developed for turning test.

The accuracy of the recommended values specified shall be considered as a minimum requirement. Any deviation from the recommended values should be described in detail in the test report.

Single point turning tool life test

1 Scope

This standard specifies the use of high speed steel, carbide ceramics and life testing single point turning tool turning steel and cast iron recommended procedure. Regulate the following factors involved in the test. the workpiece, tool, cutting fluids, cutting conditions, equipment, tool life and tool failure assessment, test procedure and recording, evaluation and reporting of results. This standard does not specify acceptance tests.

In the turning test to consider cutting conditions using the following two types.

- a) mainly due to wear and failure conditions, it is the condition of this standard the main consideration;
- b) due to other phenomena, such as cracking or plastic deformation of the cutting edge and the failure condition, this condition requires further study.

This standard applies to real life test laboratory and production of single point turning tool, see Appendix A.

2 Normative references

The following documents for the application of this document is essential. For cited documents with dates, only the dated edition applies to this document. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 145 center hole GB/T 699 high-quality carbon structural steel GB/T 1031 Geometrical product specifications (GPS) Surface texture Profile method Surface roughness parameters and their values GB/T 2075 Classification and use of cutting large groups and groups of application of hard cutting materials classification code (GB/T 2075-2007, ISO 513:2004, IDT) GB/T 2079 non-porous carbide indexable inserts (GB/T 2079-1987, ISO 883. 1985, EQV) GB/T 5343.2 indexable turning tools and tool holders - Part 2. Type size indexable turning tools and technical conditions (GB/T 5343.2-2007, ISO 5610:1998, MOD) GB/T 9239.1-2006 mechanical vibration steady state (rigid) rotor balance quality requirements - Part 1. Specification and balance tolerance test (ISO 1940-1:2003, IDT) GB/T 9439 Gray Iron Castings (GB/T 9439-2010, ISO 185:2005, MOD) GB/T 9943 high-speed tool steel (GB/T 9943-2008, ISO 4957:1999, NEQ) GB/T 12204 metal cutting basic terms GB/T 15306.1 Ceramic indexable inserts - Part 1. nonporous blade size (G grade) (GB/T 15306.1-2008, ISO 9361-1:1991, MOD) GB/T 15306.2 Ceramic indexable inserts - Part 2. perforated blade size (GB/T 15306.2-2008, ISO 9361-2:1991, MOD) GB/T 17162 machine speed and feed rate (GB/T 17162-1997, ISO 229. 1973, EQV) ISO 185 classification of gray cast iron ISO 683-1 heat-treated steels, alloy steels and free cutting steels - Part 1. Black to various hardened unalloyed and low-alloy forged steel