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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 16459-2016

Replacing GB/T 16459-1996

Tool life testing in face milling

面铣刀寿命试验

(English Translation)

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Foreword

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

This standard replaces GB/T 16459-1996 "Face mill life test".

This standard and GB/T 16459-1996 compared to the main changes are as follows.

--- deleted the preamble of international standards, added a new preface;

--- modified the normative reference file;

- Appendix A, Appendix B, Appendix C, Appendix D to normative appendices;

--- Added Appendix E, added the reference.

This standard uses the translation method equivalent to ISO 8688-1. 1989 "Milling tool life test Part 1. Face milling cutter".

This standard has made the following editorial changes.

- the removal of the international standard catalog;

- the introduction of the preamble of the international standard, the addition of a new preface;

--- the international standard to this standard;

--- move the introduction to the front of the text;

--- modified the reference.

And the normative reference in this standard international documents are consistent with the relationship between China's documents are as follows.

--- GB/T 9439-2010 Gray cast iron (ISO 185.:2005, MOD) GB/T 4889-2008 Statistical processing and interpretation of data Estimation and testing of mean and variance of normal distribution (ISO 2854.

1976, MOD)

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GB/T 12204-2010 Basic terminology for metal cutting (ISO 3002-1. 1982, MOD)

--- GB/T 2081-1987 Carbide Indexable Milling Cutter (ISO 3365. 1985, EQV) GB/T 16461-1996 Single blade cutting tool life test (idtISO 3685..1993) this standard is proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Tool Standardization Technical Committee (SAC/TC91).

This standard is responsible for drafting units. Chengdu Institute of Tools Co., Ltd.

Introduction

This standard applies to the carbide cutting tool for face milling, which is a major machining method. As shown in Figure 1.

Figure 1 Face milling cutter face milling

The methods recommended in this standard are suitable for both laboratory and factory applications. The purpose is to unify steps when cutting tools, workpiece materials, Cutting parameters and cutting fluid for comparison, can improve the reliability and comparability of test results. In order to achieve this as much as possible, this standard package Including the recommended reference materials and conditions, should be practically used.

In addition, the recommended values in the standard can be used to help determine the recommended cutting data, or to determine the limiting factors and some processing characteristics, such as cutting the properties of the machined surface and the shape of the chip. Especially for the purposes described above, even if this standard has given some of the recommended values Number, which may have to be used as a variable.

The recommended test conditions for this standard apply to face milling tests for steels and castings with normal metallographic properties. But if it is appropriate this standard can also be applied to other materials or for the special purpose of the tool developed by the end of the milling test.

The accuracy of the recommended values should be considered the minimum requirement. Any deviation from the recommended value should be specified in the test report.

Note: This standard is not provided for acceptance test, nor for such use.

Face milling cutter life test

1 Scope

This standard specifies the recommended procedure for the milling of steel and cast iron pieces in the life test of cemented carbide face mills. It applies to laboratories and students Production reality.

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Face milling can be considered for the following two types of cutting conditions.

a) the conditions under which the tool is primarily due to wear and tear;

b) The tool is mainly due to other phenomena, such as cutting edge fracture or plastic deformation failure conditions.

This standard only considers the recommended values for tests based on tool wear.

The test of the second type of condition is under study.

This standard specifies the tool life test as shown in Figure 1, the following factors. the workpiece, tool, cutting fluid, cutting Cutting conditions, equipment, tool failure and tool life evaluation, test procedures, and record, evaluation and reporting of results.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

ISO 185 Greycastirons-Classification ISO 513 Classification and use of hard-cutting materials for cutting - Classification and use of group and use groups Classification and applicationofhardcuttingmaterialsformetalremovalwithdefinedcuttingedges-designationofthe maingroupsandgroupsofapplication) ISO 683-1 heat-treated steel, alloy steels and free-cutting steels - Part 1. Quenched and tempered non-alloy steels (Heat-treatable steels, aloysteelsandfree-cuttingsteels-Part 1. Non-aloysteelsforquenchingandtempering) ISO 1701-1 Test conditions for milling machines for stereoscopic and horizontal lifting tables - Accuracy test - Part 1. Horizontal machine conditionsformilingmachineswithtableofvariableheight-Testingoftheaccuracy-Part 1. Ma-chineswithhorizontalspindle) ISO 1701-2 Test conditions for milling machines with lifting tables - Accuracy testing - Part 2. Test conditions formilingmachineswithtableofvariableheight-Testingofaccuracy-Part 2. Machineswithverti-calspindle) Statistical processing and interpretation of ISO 2854 data Estimation and verification of mean and variance of normal distribution (Statisticalinterpretation ofdata-Techniquesofestimationandtestsrelatingtomeansandvariances) ISO 3002-1 Basic parameters for cutting and grinding Part 1. Geometrical parameters of the effective part of the cutting tool General terms, references System, tool and working angle, chip breaker (Basicquantitiesincuttingandgrinding-Part 1. Geometryofthe activepartofcuttingtools-Generalterms, referencesystems, toolandworkingangles, chipbreak-ers) ISO 3365 Carbide Indexable Milling Cutter Size [Indexablehardmetal (carbide) insertswithwipered-ges, withoutfixinghole-Dimensions ISO 3685 single-blade turning tool life test (Tool-lifetestingwithsingle-pointturningtools) ISO 6462 Indexable face milling cutter size (Faceandshouldermilingcutterswithindexableinserts-Di-

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