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**NATIONAL STANDARD OF THE
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Balancing of rotating tools and tool systems

旋转工具和工具系统的动平衡

(English Translation)

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Table of Contents

Preface	
1 Scope	
2 Normative References	
3 Terms and Definitions, Symbols and Abbreviations	
3.1 Terms and Definitions	
3.2 Symbols and Abbreviations	
4 Requirements	
4.1 General Requirements	
4.2 Depends on the bearing load balance requirements	
4.3 Safety-related imbalance limits of ISO 15641 (G40)	
4.4 Graphical visualization of balance requirements	
4.5 Special tools with asymmetrical shapes	
5 The Balance of the Tool System	
5.1 General Rule	
5.2 Balancing of Tool System Components	
5.3 Influence of component imbalance angle direction	
5.4 Influence of clamping displacement	
5.5 Integration of tool system components balanced according to ISO 1940-1	
5.6 Based on the actual imbalance, the allowable speed is 25.	
5.7 Determination and Calculation of Center of Gravity	
5.8 Balancing Tools and Components with Alternative Interfaces	
5.9 HSK Adapter 26 with Rotational Symmetry Tool	
5.10 Notes on tool system settings and balancing	
6 Data Representation and Exchange	
Appendix A (Informative) Permissible Residual Disequilibrium Theoretical Methods and Calculation Examples	
A.1 Additional symbols and abbreviations in this Appendix, Appendix B and Appendix D	
A.2 Principle	
A.3 Method	
A.4 Convert the permissible static residual imbalance into a permissible dynamic imbalance in two planes	
A.5 Calculation Example	
Appendix B (Informative) Calculation Examples of Tool Systems	

B.1 Example of balancing calculation for a standard tool system consisting of three components
B.2 Balance the tool components according to 5.2
B.3 Dynamic equilibrium of the assembly tool system in Figure B.1
Appendix C (Normative) XML File Structure for Recording Balance Information
Appendix D (Informative). Basic Formulas, Correlations, and Practical Suggestions for Imbalance
References

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document adopts ISO 16084:2017 "Dynamic balancing of rotary tools and tool systems".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Cutting Tools.

1 Scope

This document specifies the requirements and calculations for allowable residual imbalance of individual rotary tools and tool systems for static and dynamic imbalance.

This principle ensures that the centrifugal force generated by imbalance during rotation will not damage the spindle bearing, thus preventing adverse effects on the machining process, tool life, and workpiece quality.

Causes damage.

Note 1: The tools and tool systems in this document include hollow cone interfaces (HSK) with flanged contact surfaces conforming to ISO 12164-1 and ISO 12164-2.

ISO 26622 series modular tapered joints with steel ball tension, ISO 26623 series polygonal tapered joints with flange contact surfaces, ISO 7388-1, the 7.24 conical interfaces of ISO 7388-2, ISO 9270-1, and ISO 9270-2 each have their own operating speeds.

This document defines a modular tool system, including a process description and

calculation for balancing the components and assembly tool systems therein.

This document specifies the tool shank clamping displacement and its effect on the balancing process. Clamping displacement can occur between the tool or tool system and...

Machine tool spindles may also change during the assembly of modular tool systems (e.g., tool changes).

Note 2: Unfavorable process or system conditions (e.g., local resonance of the mechanical structure caused by a specific rotational speed) or design and machine tool-related technical conditions (e.g., shaft) the extension length, confined space conditions, vibration-sensitive equipment, clamping devices, and tool designs can all lead to increased vibration loads and balance requirements.

This depends on the interaction of the individual machine tool and tool spindle system, and cannot be fully covered by standards. In some cases, deviations may be necessary.

The recommended limits are specified in this document.

Note 3: Wear on the shank interface may also cause changes in clamping conditions, thereby worsening runout and balance conditions. These errors cannot be specifically addressed in this document.

solve.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

Note: GB/T 6444-2008 Terminology for Mechanical Vibration Balancing (ISO 1925:2001, IDT)

3.1 Terms and Definitions

The terms and definitions defined in ISO 1925 and the following terms and definitions apply to this document.

3.1.1

Tools - Spindle System the assembly of all components, namely the machine tool spindle and tool system (3.1.2), is affected by design, shape, runout, etc.

This leads to an imbalance.

3.1.2

toolsystem

A system formed by assembling at least two components.

Example. A handle adapter and a single tool.

Note 1: In this document, "modular tool system" and "tool system" are used as synonyms.