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

GB/T 12177-2008

Replacing GB/T 12177-1990

**Industrial automation systems -- Numerical control of machines
-- NC processor output -- File structure and language format**

工业自动化系统 机床数值控制 NC处理器输出 文件结构和语言格式

(English Translation)

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Foreword

This standard is identical with ISO 3592:2000 "Industrial automation systems - Numerical control of machines NC processor output file structure and Language format. " this standard is equivalent translation ISO 3592:2000.

For ease of use, this standard made the following editorial changes.

--- Use the "standard" instead of "this International Standard."

--- Remove the ISO 3592:2000 Foreword.

--- Delete references to normative documents guiding language, with GB/T 1.1-2000 6.2.3 specified in the introductory phrase instead.

--- For the ISO 3592:2000 and other international standards referenced in our country is equivalent to using the standard, with reference to our present standard in place of national standards corresponding to international standards, and the rest is not tantamount to the adoption of standard international standard, in this standard are straight Then reference.

The revised standard and replaces GB/T 12177-1990 "NC processor output of the logical structure of digital control machine", the previous Compared to the version of the main technical changes are as follows.

- Content has been adjusted, logic, normative stronger.
- File structure and language format from two aspects of the system elaborated on the data standards.
- Increase the relevant definitions.
- Increase the definition of the coordinate system.

The Standard Appendix A, Appendix B normative appendix.

The standard proposed by China Machinery Industry Federation.

This standard by the National Industrial automation systems and integration Standardization Technical Committee (SAC/TC159) centralized.

This standard was drafted. Beijing Machine Tool Research Institute, Beijing KND CNC Technology Co., Ltd.

Introduction

Universal numerical control processing program information is input information output post-processing program information. This information is called CLDATA, it was originally derived from the term "(tool) location data." CLDATA provides a common language, it can process information transmitted from the numerical control processor to post the information processor, where such an application language is converted into a specific format specific numerical control device required.

Many types of machinery are applied numerical control technology, but defined in this standard language is mainly aimed at the development of CNC machine tools. because this language used in the description of the term "tool" and "parts", the processing elements are used to represent and be processed elements. Many vocabulary Vocabulary but also from metal processing terminology.

CLDATA reference language oriented data stream, including a special character to separate the reference language elements described in Appendix A Represents the reference language rules on record-oriented medium, in this standard, it is described with reference to the use of this notation language.

GB/T 12177-2008/ISO 3592:2000 Industrial Automation Systems Numerical control of machines NC processor output File structure and language format

1 Scope

This standard defines the representation CLDATA the file structure on physical media formats and languages.

CLDATA reference language for machined parts, CNC machine tools, which provides process control functions and movement.

Application of a certain kind of numerical control programming language processor should be able to either student cost standard definition CLDATA.

Each post processor should be able to use the standard definition of CLDATA as input.

The main reference language for the development of CNC machine tools.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 1988-1998 Technical information interchange bit coded character set (eqv ISO/IEC 646:1991) GB/T 11292 Industrial automation systems - Numerical control of machines Numerical control processor output post-processor instruction (GB/T 11292-2008, ISO 4343:2000, IDT) GB/T 12646 Numerical control of machines - NC processor input Basic part program reference language (GB/T 12646-1990, eqv ISO 4342. 1985) GB/T 19660-2005 Industrial automation systems and integration - Numerical control of machines and motion coordinate system named (ISO 841. 2001, IDT)

3 Coordinate system

GB/T 19660-2005 is used to define the basis CLDATA coordinate system.

Coordinate system is a right-handed Cartesian coordinate system, and assembly parts on the machine concerned and parallel to the centerline of the machine guide. Machine unit Member of the forward movement led to an increase on the part forward sizes.

In CLDATA, reference axes of the coordinate system is x, y and z. Means a coordinate reference point on the tool (usually at the top of the Heart), the coordinate system relative to the part. CLDATA can define the position and orientation.

x parallel to the X direction;

y parallel to the Y direction;

z is parallel to the Z-direction;

i tool axis X direction component of the vector;

j tool axis Y direction vector component;

k tool axis Z direction component of the vector;

L of the second X-direction component of the direction vector;

Y direction m second direction vector component;

Z direction n second direction vector components.

When the angle of the plane is determined, and the counterclockwise direction is the positive direction of the reference axis as shown in Table 1. The positive direction of the angle is the inverse of the reference axis Direction of the needle.

GB/T 12177-2008/ISO 3592:2000