

ICS 25.060.20

CCS J 52



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

GB/T 20959-2025

Replacing GB/T 20959-2007

NC vertical turret

数控立式转塔刀架

Issued on: August 29, 2025

Implemented on: March 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

Preface	III
1 Scope	1
2 Normative References	1
3 Terms and Definitions	1
4 Types and Connection Dimensions	1
5 Requirements	3
6 Test Methods	12
7 Test	14
8 Markings, packaging, and accompanying documents	14
Figure 1. Dimensions of the tool holder connection. Figure 2 Static loading force and measurement location	14
Table 1 Tool Post Connection Dimensions	2
Table 2 Repeatability	4
Table 3. Offset of tool hole axis in working position	5
Table 4 Parallelism of tool hole axes in the working position	6
Table 5 Parallelism of the dovetail groove to the bottom surface	7
Table 11 Static loading torque	14

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 replaces GB/T 20959-2007 "CNC Vertical Turret Tool Post". Compared with GB/T 20959-2007, the main differences are structural adjustments and...

Aside from editorial changes, the main technical changes are as follows.

- The type has been changed, and the description of the main parameters has been revised. The classification of tool holder type based on the different square shapes of the tool holder has been changed to classification based on the square shape of the tool holder.

The packaging is different (see 4.1.1, 4.1.2, and 3.1 and 3.2.1 in the 2007 edition);

- The scope of application for Formulas I and II has been modified (see 4.2.1, 3.2.2 of the 2007 edition);

- The tolerance value for the equidistant distance between the dovetail groove and the bottom surface height in item G5 has been changed from "0.25" to "0.020" (see table).

6 Table 2 (2007 edition)

- The parallelism tolerance value of each dovetail groove positioning side in item G6 at the working position has been changed from "0.20" to "0.015" (see table).

7 Table 2 (2007 edition)

- The perpendicularity tolerance value of the dovetail groove positioning side to the bottom surface in item G7 has been changed from "0.20" to "0.015" (see Table 8, 2007). Table 2 (Year Edition)
- The positional offset tolerance value of the dovetail groove positioning side to the tool post rotation center in item G8 has been changed from "0.30" to "0.025" (see...).

Table 9 (Table 2 in the 2007 edition)

- The standard for checking the cleanliness of the tool holder after assembly has been changed from "according to the provisions of JB/T 9877" to "according to..." The provisions of GB/T 25374-2010 (see 5.4.3, 2007 edition 4.4.3);
- The standard for the sealing and waterproofing test has been changed from "according to 13.2.5 of GB 4208-1993" to "according to..." GB/T 4208-2017, section 14.2.5, specifies (see 6.3, section 5.3 of the 2007 edition);
- Added parameter requirements for the simulated tool holder (see Table 10).

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 by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Metal Cutting Machine Tools (SAC/TC22).

This document was drafted by: Yantai Huanqiu Machine Tool Equipment Co., Ltd., China General Technology Group Machine Tool Engineering Research Institute Co., Ltd., and Jiangsu...

Hongda CNC Technology Co., Ltd., Changzhou Genyuan CNC Equipment Co., Ltd., Changzhou Xinshu Machine Tool CNC Equipment Co., Ltd., Wenling City Sanhe CNC Machine Tool Equipment Co., Ltd., Tengzhou Comprehensive Inspection and Testing Center, Huaiyin Institute of Technology, Yantai Standards and Metrology Inspection and Testing Center Shandong Weida Machinery Co., Ltd., Shanghai Machine Tool Works Co., Ltd.

The main drafters of this document are: Jing Guofeng, Yang Aiju, Zang Kebao, Zhang Yuedong, Yu Chunping, Chen Qingfeng, Kang Xiaobo, Xu Zhihua, and Ye Yunfu.

Guo Feng, Chen Zhong, Chen Lei, Ma Guangfen, Cheng Jie.

The release history of this document and the document it replaces is as follows.

- First published in 2007 as GB/T 20959-2007;
- This is the first revision. CNC vertical turret tool post

1 Scope

This document specifies the types, connection dimensions, requirements, test methods, inspection, and marking of CNC vertical turret tool holders (hereinafter referred to as tool holders).

Packaging and accompanying documents.

This document applies to the design of motor-driven tool holders with a rotary axis vertically mounted on a base surface and a tool holder square dimension of 100mm~400mm.

Manufacturing and connection dimensions are applicable to the newly designed tool holder. Other tool holder dimensions should be referenced for reference.

2 Normative references

GB/T 4208-2017

GB/T 17421.1-2023

GB/T 17421.5

GB/T 25374

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.1 Type

4.1.1 The main parameter of the tool holder is twice the distance from the tool mounting surface of the tool holder to the axis of rotation of the tool holder. for inclined tool holders, the larger end dimension is used as a reference.

4.1.2 Tool holders are classified into three types-Type A, Type B, and Type C-based on the different tool mounting surfaces on the tool holder side.

Type A, rectangular slotted tool holder;

Type B, cylindrical hole tool holder;

C-type, dovetail groove tool holder.

Note. The simplified diagrams in this document are for illustrative purposes only.

4.2 Connection Dimensions

4.2.1 The connection dimensions between the tool holder and the machine tool are divided into two types, Type I and Type II, which are selected by the manufacturer according to the product structure requirements.

Note. Type I is mainly used for tool holders where rotation of the tool holder exposes the mounting screw holes is convenient during installation; Type II is mainly used for tool holders where rotation is inconvenient during installation.

The tool holder has exposed mounting screw holes.

4.2.2 The tool holder connection dimensions are shown in Figure 1 and Table 1. Special requirements can be agreed upon by the manufacturer and the user.