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GB/T 4346-2008

Replacing GB/T 4346.1-2002

Machine tools - Manually operated self-centring chucks

机床 手动自定心卡盘

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Standardization Administration of PRC.

Table of Contents

Foreword

This standard replaces GB/T 4346.1-2002 *Self-centring manually-operated chucks for machine tools - Part 1: Dimensions and specifications*.

Compared with GB/T 4346.1-2002, the main changes in this standard are as follows:

-- The definitions of "base or master jaw" and "top jaw" are deleted (3.1 and 3.2 of the 2002 edition);

-- All parameters of the 800 mm specification are added (see Table 1 ~ Table 8 of this edition);

-- The specifications of 630 are adjusted: The D_1 size in Table 2 is adjusted from 545 to 560, the D_2 size is adjusted from 586 to 595, and the D_{3min} size is adjusted from 240 to 260. In Table 4, the D_{3min} size is adjusted from 250 to 350, and the H_{max} size is adjusted from 270 to 200;

-- The static balance retains the original level II accuracy value with reference to Japanese standards (see 5.5.1 of this edition);

-- Sizes for interchangeability of two-piece jaws (tongue and groove type) are deleted (Figure 4 and Table 5 of the 2002 version);

-- The geometric accuracy inspection of chucks with two-piece jaws but without a top jaw is deleted (Appendix A of the 2002 version).

Appendix A of this standard is an informative appendix.

This standard was proposed by China Machinery Industry Federation.

This standard shall be under the jurisdiction of the National Technical Committee on Metal Cutting Machine Tool of Standardization Administration of China (SAC/TC22).

Drafting organization of this standard: Hohhot Zhonghuan (Group) Co., Ltd., Zhejiang Yuanpai Machine Tool Accessory Co., Ltd., Machine Tool Accessory Branch of Tianjin Zeer NC Machine Tool Component Co., Ltd., Wafangdian Yongchuan Machine Tool Accessory Co., Ltd., Wuxi Jianhua Machine Tool Accessories Group Co., Ltd.

Main drafters of this standard: Du Shucheng, Zhang Guobin, Ye Taigen, Xu Decai, Xu Shishun, Liu Shide, Shi Shuqing.

The previous versions of the standards replaced by this standard are as follows:

-- GB 4346-1984, GB/T 4346.1-2002.

Machine tools - Manually operated self-centring chucks

1 Scope

This standard specifies the type and parameters, technical requirements, test methods, inspection rules, marking, and packaging of manually operated self-centring chucks (hereinafter referred to as chucks).

This standard is applicable to scroll three-jaw chucks, and it also can be used as a reference for other scroll chucks.

2 Normative reference documents

The provisions in the following documents become the provisions of this standard through reference in this standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this standard, however, parties who reach an agreement based on this standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest editions of the referenced documents apply to this standard.

GB/T 5900.1-1997 Machine tools - Spindle noses and face plates - Sizes for interchangeability - Part 1: Type A (eqv ISO 702-1:1975)

GB/T 5900.2-1997 Machine tools - Spindle noses and face plates - Sizes for interchangeability - Part 2: Camlock type (eqv ISO 702-2:1975)

GB/T 5900.3-1997 Machine tools - Spindle noses and face plates - Sizes for interchangeability - Part 3: Bayonet type (eqv ISO 702-3:1975)

JB/T 3207-2005 Machine tool accessory - General specification for products packaging

JB/T 9935-1999 Machine tool accessory - Technic document compiled

ISO 3089:2005 Machine tools - Test conditions for self-centring, manually-operated chucks with one-piece jaws

ISO 3442-1:2005 Machine tools - Dimensions and geometric tests for self-centring chucks with two-piece jaws - Part 1: Manually operated chucks with tongue and groove type jaws

6.3 Clamping force measurement

Clamp the dynamometer with the internal jaws, keep the force measuring point as close to the end face of the chuck as possible, and then clamp them in sequence with a wrench.

When the dynamometer is too large relative to the clamping diameter of the chuck, for example, for chucks with a diameter not larger than 160 mm, special jaws are allowed to be used.

6.4 Limit speed determination

Under the conditions where the limit speed is limited, use an instrument to test the limit speed of the chuck. In actual measurement, the equivalent internal jaw clamping method can also be used; according to the ratio of the center-of-mass radius of the internal jaw clamping state to the external jaw clamping state, and based on the measured value of the clamping force loss in the internal jaw clamping state, the actual value of clamping force loss in the external jaw clamping state can be calculated. The speed at which this actual value reaches two-thirds of the static clamping force is the limit speed.

$$F_1 = F_2 r_1 / r_2 \qquad \cdots\cdots (3)$$

where:

F_1 --The actual measured value of clamping force loss when the internal jaws clamp the dynamometer, the unit is kilonewton (kN);

F_2 -- Two-thirds of the static clamping force, the unit is kilonewton (kN);

r_1 -- The radius of the center of mass of the jaws when the internal jaws clamp the dynamometer, in millimeters (mm);

r_2 -- The center-of-mass radius of the jaws when the external jaws are flush with the outer circle of the chuck, in millimeters (mm).

7 Inspection rules

7.1 Factory inspection

Each chuck must pass the inspection before leaving the factory. The inspection items include appearance, geometric accuracy, marks, and packaging.

7.2 Type inspection

Type inspection items include all technical requirements involved in this standard and the corresponding test methods, marks, and packaging. Type inspection shall be carried out under one of the following circumstances.

a) Trial prototype appraisal for new products or for the production of original products transferred to another factory;

b) After the product is officially produced, there are major changes in process, structure, materials, etc., which may affect product performance;

c) When production resumes after a long-term suspension;

d) When the enterprise conducts regular quality inspections or when the superior quality supervision agency proposes type inspection requirements.

Sampling and evaluation can be carried out in accordance with relevant industry regulations if there is no agreement between the supplier and the buyer. The sampling quantity for static balance and clamping force determination shall generally not be less than three.

8 Marking and packaging

8.1 The chuck shall be marked with the manufacturer's name or trademark.

8.2 A chuck wrench and bolts for installing the chuck shall be supplied with the machine; a wrench for the jaw screws shall be provided with the two-piece jaw chuck.

8.3 Packaging shall comply with the regulations of JB/T 3207-2005.

8.4 Accompanying technical documents shall comply with the provisions of JB/T 9935-1999.

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