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

GB/T 16823.3-2010

Replacing GB/T 16823.3-1997

Fasteners -- Torque/clamp force testing

紧固件 扭矩-夹紧力试验

(English Translation)

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Foreword

This part of GB/T 16823 (hereinafter referred to as this part) is one of the series of standards for "twist-pull relationship of threaded fasteners". The system includes.

---GB/T 16823.1-1997 Threaded fastener stress cross-sectional area and bearing area;

---GB/T 16823.2-1997 General rules for fastening threaded fasteners;

This part is the third part of GB/T 16823.

This part is equivalent to ISO 16047:2005 "fastener torque - clamping force test" (English version), the main editorial changes are as follows.

--- In the reference document, replace the international standard with our national standard (Chapter 2).

This part replaces GB/T 16823.3-1997 "Test method for tightening of threaded fasteners".

The main changes in this section compared with GB/T 16823.3-1997 are as follows.

---Modify the standard name;

--- The regulations apply to fasteners made of carbon steel and alloy steel with thread sizes M3~M39 (Chapter 1);

---The mechanical properties of the fasteners shall comply with the provisions of GB/T 3098.1, GB/T 3098.2 or GB/T 3098.4 (Chapter 1);

--- specifies that the test should be carried out at room temperature, and the standard test conditions are 10 ° C ~ 35 ° C (Chapter 1);

---Adjust the reference standard (Chapter 2);

--- Added terms and definitions, codes and their meanings (Chapter 3, Chapter 4);

--- Increased the total friction coefficient (see 10.2).

--- Increased the tightening torque (see 10.8);

--- Cancel the old standard Figure 3 "fastening corner and tightening axial force, tightening torque curve", and stipulate. there are many ways to determine the yield clamping Force (yield tightening torque), the specific method of use is agreed by the contracting parties (see 10.5, 10.6);

---Specified limit clamping force should be read during the test, when the clamping force reaches the maximum (see 10.7);

--- Adjusted the determination method and calculation formula of various friction coefficients (Chapter 10).

This part was proposed by the China Machinery Industry Federation.

This part is under the jurisdiction of the National Fastener Standardization Technical Committee (SAC/TC85).

This section is responsible for drafting the unit. China Machine Productivity Promotion Center.

Participated in the drafting of this section. Machinery Industry General Parts Product Quality Supervision and Inspection Center, Ningbo Jiulong Fastener Manufacturing Co., Ltd.

Division, Beijing Keruisi Measurement and Control Technology Co., Ltd., Zhejiang Zeen Standard Parts Co., Ltd., Shanghai Shenguang High Strength Bolt Co., Ltd.

The previous versions of the standards replaced by this section are.

---GB/T 16823.3-1997.

Fastener torque-clamping force test

1 Scope

This part of GB/T 16823 specifies the conditions for the torque-clamping force test of threaded fasteners and related parts.

This section is mainly applicable to bolts, screws, studs and nuts made of carbon steel and alloy steel with thread sizes M3~M39. its Mechanical properties should be in accordance with GB/T 3098.1, GB/T 3098.2 or GB/T 3098.4. This section also applies to ISO 68-1 regulations.

Other internal and external threaded fasteners are connected.

This section does not apply to set screws and similar unthreaded threaded fasteners, nor to locking performance, self-tapping or self-squeezing.

Type of threaded fasteners.

The test was carried out at room temperature unless otherwise agreed. The standard test conditions are 10 ° C ~ 35 ° C.

The methods specified in this section determine the fastening characteristics of threaded fasteners and related parts.

2 Normative references

The provisions in the following documents become the provisions of this part by reference to this part of GB/T 16823. Quotations with dated , all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouragement

is achieved under this section the parties to the agreement study whether the latest versions of these documents can be used. For undated references, the latest edition applies to this section.

GB/T 70.1 hexagon socket head cap screws (GB/T 70.1-2008, ISO 4762:2004, MOD) GB/T 96.1 large washer grade A (GB/T 96.1-2002, eqvISO 7093-1:2000) GB/T 192 ordinary thread basic tooth type (GB/T 192-2003, ISO 68-1:1998, MOD) GB/T 228 metal materials tensile test method at room temperature (GB/T 228-2002, eqvISO 6892:1998) GB/T 3098.1 Mechanical properties of fasteners Bolts, screws and studs (GB/T 3098.1-2010, ISO 898-1:1999, IDT) GB/T 3098.2 fastener mechanical properties nut coarse thread (GB/T 3098.2-2000, idtISO 898-2:1992) GB/T 3098.4 Fastener mechanical properties nut fine thread (GB/T 3098.4-2000, idtISO 898-6:1994) GB/T 3103.3 fastener tolerance flat washer (GB/T 3103.3-2000, idtISO 4759-3:2000) GB/T 5267.1 Fastener plating (GB/T 5267.1-2002, ISO 4092:1999, IDT) GB/T 5267.2 fastener non-electrolytic zinc sheet coating (GB/T 5267.2-2002, ISO 10683:2000, IDT) GB/T 5277 fastener bolts and screw through holes (GB/T 5277-1985, eqvISO 273:1979) GB/T 5782 Hex Head Bolts (GB/T 5782-2000, eqvISO 4014:1999) GB/T 5783 hexagon head bolt full thread (GB/T 5783-2000, eqvISO 4017:1999) GB/T 5785 Hex Head Bolt Fine Teeth (GB/T 5785-2000, eqvISO 8765:1999) GB/T 6170 Type 1 Hex Nut (GB/T 6170-2000, eqvISO 4032:1999) GB/T 6171 type 1 hex nut fine teeth (GB/T 6171-2000, eqvISO 8673:1999) GB/T 6175 Type 2 Hex Nut (GB/T 6175-2000, eqvISO 4033:1999) GB/T 6176 2 type hex nut fine teeth (GB/T 6176-2000, eqvISO 8674:1999) GB/T 16674.1 Hexagon flange bolt series (GB/T 16674.1-2004, ISO 15071:1999, MOD) GB/T 16674.2 Hexagon Flange Face Bolt Fine Teeth Series (GB/T 16674.2-2004, ISO 15072:1999, MOD)

3 Terms and definitions

The following terms and definitions apply to this section.

Clamping force *clampforce* During the tightening process, it acts on the tension of the bolt shank or the pressure between the connected parts.

Yield clamping force *yieldclampforce* F_y when tightened, the screw or meshing thread reaches the clamping force at the time of yielding under the condition of composite stress.

Ultimate clamping force F_u the maximum clamping force that can occur before the screw breaks under the condition of composite stress.

Tightening torque *Tighten torque wrenchingtorque* Applying torque *appliedtorque* Torque applied to the nut or bolt head when tightened.

Yield tightening torque T_y the tightening torque to reach the yield clamping force.

Thread torque T_{th} the torque acting on the bolt shank by the engagement thread during the tightening process.