INTERNATIONAL STANDARD 3315

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Assembly tools for screws and nuts — Driving parts for hand-operated square drive socket wrenches — Torque testing

Outils de manœuvre pour vis et écrous — Pièces de commande pour douilles à main à carré conducteur — Essai de résistance à la torsion

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3315 was drawn up by Technical Committee ISO/TC 29, *Small tools*, and circulated to the Member Bodies in February 1974.

It has been approved by the Member Bodies of the following countries :

Austria	India	Switzerland
Belgium	Israel	Turkey
Bulgaria	Italy	United Kingdom
Chile	New Zealand	U.S.S.R.
France	Romania	Yugoslavia
Germany	South Africa, Rep. of	
Hungary	Sweden	

The Member Body of the following country expressed disapproval of the document on technical grounds :

Japan

Printed in Switzerland

Assembly tools for screws and nuts — Driving parts for hand-operated square drive socket wrenches — Torque testing

1 SCOPE AND FIELD OF APPLICATION

This International Standard applies to driving parts for hand-operated square drive sockets listed under numbers 253, 255, 256, 257, 251, 252 and 254 in ISO 1703. It specifies :

- the minimum value for the hardness of their driving squares;
- the method of torque testing;
- the minimum values for their torsional strength.

2 REFERENCES

ISO 1174, *Assembly tools for bolts and screws — Driving squares for power socket wrenches and hand socket wrenches.*

ISO 1703, *Assembly tools for screws and nuts — Nomenclature.*

ISO 1711, *Hand operated wrenches and sockets — Technical specifications.*

3 DRIVING SQUARES

Driving squares shall be in accordance with ISO 1174 and have a minimum hardness of 39 HRC.

4 TORQUE TESTING

4.1 Procedure

Place the tool in a female test square and apply the corresponding torque.

Do not jerk or strike the tool when testing and apply the load gradually until the minimum testing torque (see clause 5) is reached. The torque is calculated as the product of the magnitude of the load by the distance measured between the point of application of the load and the axis of the female test square.

The across flats dimension of the female test square shall be equal to the minimum dimension of the corresponding female square (see 4.2 of ISO 1174) with a tolerance of H8; the female test square shall be hardened to not less than 55 HRC.

A device in which the female test square can be rotated at a certain torque, determined with an accuracy of ± 2,5 %, may also be used for this test.

Following the application of the minimum test torque, the tool shall not show permanent deformation or other damage which could influence usability.

4.2 Special requirements

4.2.1 *Test of tee handle square drive*

Draw out the handle completely to one end and apply the torque to the end farthest from the test square.

4.2.2 *Test of speed brace*

Apply the torque in the middle of the part on which the operator's hand normally rests.

4.2.3 *Test of ratchet handle and ratchet handle reversible*

Apply the torque as near to the end of the handle as possible.

4.2.4 *Test of handle, spin type, male square*

An appropriate appliance shall be used to allow the torque to be applied to the handle without clamping the handle on the rod, which could alter the test result.

4.2.5 *Test of nut spinner, flex head*

Apply the torque as near as possible to the end of the handle, which is placed at right angles to the axis of the square.

4.2.6 *Test of offset handle square drive*

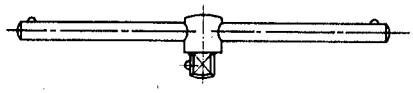
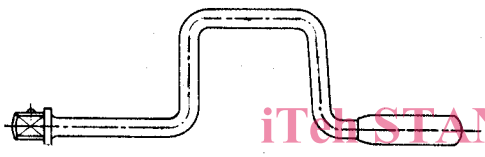
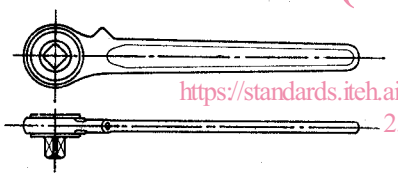
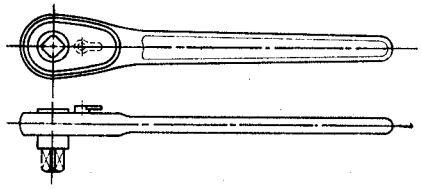
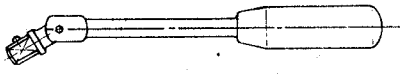
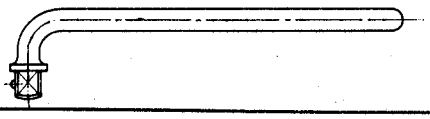
Apply the torque as near to the end of the handle as possible.

5 MINIMUM TEST TORQUE *M*

Torques to be applied during tests have been calculated using the formula :

$$M = 0{,}196 \times s^3 \text{ min.}$$

(For the dimensions of driving squares, see ISO 1174.)

No.	Tool	Designation	Nominal dimension of driving square	Torque *M*
			mm	N·m
253		Tee handle drive square	6,3 10 12,5 20 25	48 165 390 1 330 3 160
255		Speed brace	6,3 10 12,5 20 25	24* 82* 195* 660* 1 580*
256		Ratchet handle	6,3 10 12,5 20 25	48 165 390 1 330 2 210**
257		Ratchet handle reversible	6,3 10 12,5 20 25	48 165 390 1 330 2 210**
251		Handle, spin type, male square	6,3 10	10*** 33***
252		Nut spinner, flex head	6,3 10 12,5	48 165 390
254		Offset handle square drive	6,3 10 12,5	48 165 390

* Torque *M* applicable to tool No. 253, multiplied by the coefficient 0,5.

** Torque *M* applicable to tool No. 253, multiplied by the coefficient 0,7.

*** Torque *M* applicable to tool No. 253, multiplied by the coefficient 0,2.