

BS ISO 2351-3:2014



BSI Standards Publication

Assembly tools for screws and nuts — Machine-operated screwdriver bits

Part 3: Screwdriver bits for hexagon socket screws

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of ISO 2351-3:2014. It supersedes BS ISO 2351-3:2002 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MTE/15, Hand tools.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2014. Published by BSI Standards Limited 2014

ISBN 978 0 580 80092 4

ICS 25.140.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2014.

Amendments issued since publication

Date	Text affected
------	---------------

INTERNATIONAL
STANDARD

ISO
2351-3

Second edition
2014-02-01

**Assembly tools for screws and nuts —
Machine-operated screwdriver bits —**

Part 3:
**Screwdriver bits for hexagon socket
screws**

*Outils de manoeuvre pour vis et écrous — Embouts tournevis à
machine —*

Partie 3: Embouts tournevis pour vis à six pans creux



Reference number
ISO 2351-3:2014(E)

© ISO 2014



COPYRIGHT PROTECTED DOCUMENT

© ISO 2014

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Dimensions	1
4 Technical requirements	3
5 Torque test	3
6 Designation	4
7 Marking	4
Bibliography	5

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 29, *Small tools*, Subcommittee SC 10, *Assembly tools for screws and nuts, pliers and nippers*.

This second edition cancels and replaces the first edition (ISO 2351-3:2002), of which it constitutes a minor revision with the following changes:

- designation according to ISO 1703 has been included;
- references have been updated;
- minimum proof torque values in [Table 2](#) have been corrected;
- relation of minimum proof torque and M_d ISO 2936 in [Table 2](#) has been defined exactly.

ISO 2351 consists of the following parts, under the general title *Assembly tools for screws and nuts — Machine-operated screwdriver bits*:

- *Part 1: Screwdriver bits for slotted head screws*
- *Part 2: Screwdriver bits for cross-recessed head screws*
- *Part 3: Screwdriver bits for hexagon socket screws*

Assembly tools for screws and nuts — Machine-operated screwdriver bits —

Part 3: Screwdriver bits for hexagon socket screws

1 Scope

This part of ISO 2351 prescribes the technical specifications for machine-operated screwdriver bits for hexagon socket screws, listed in ISO 1703 under reference number 3 2 03 01 0. It applies to bits with male hexagon drive or with cylindrical flat-end drive as defined in ISO 1173 and to tips for screwdrivers as defined in ISO 2936. It also gives recommended combinations between tips and bits.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

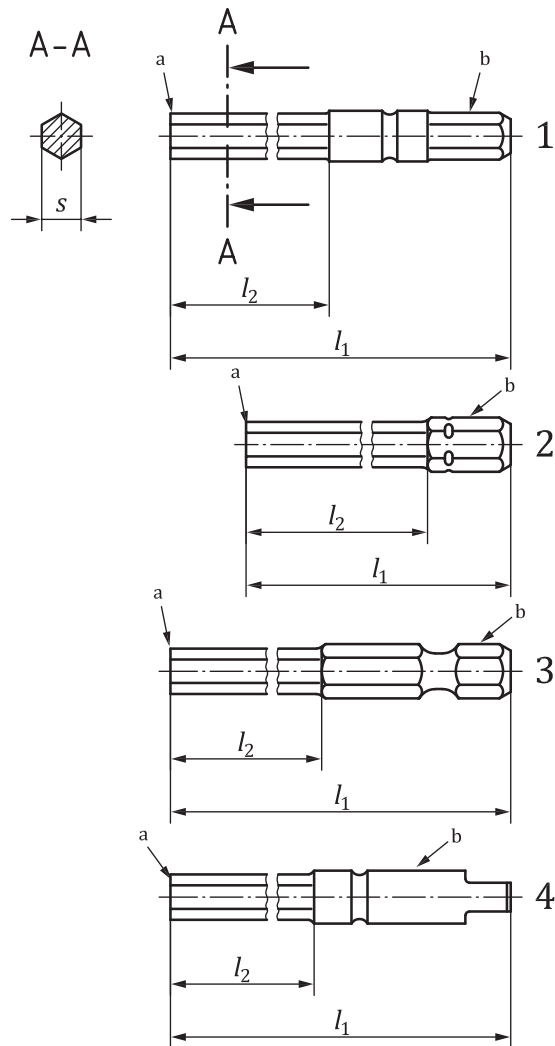
ISO 1173, *Assembly tools for screws and nuts — Drive ends for hand- and machine-operated screwdriver bits and connecting parts — Dimensions, torque testing*

ISO 2936, *Assembly tools for screws and nuts — Hexagon socket screw keys*

3 Dimensions

[Figure 1](#) and [Table 1](#) show the recommended combinations of screwdriver bits for hexagon socket screws.

The shape of the liaison between the tip and the driver end is at the discretion of the manufacturer.



Key

- 1 Form A
- 2 Form C
- 3 Form E
- 4 Form G
- a Part in contact with the screw (in accordance with ISO 2936).
- b Driver end (in accordance with ISO 1173).

Figure 1 — Screwdriver bits

Table 1 — Recommended combinations between tip and driver end

Nominal width across flats s (in accordance with ISO 2936)	l_2 min mm	Nominal male hexagon or cylindrical flat end of form (in accordance with ISO 1173)									
		A 3	A 5,5	C 4	C 6,3	C 8	C 12,5	E 6,3	E 8	E 11,2	G 7
		$l_1 \pm 2$ mm									
		45	50	28	25	30	50	50	50	55	63
0,7	1,7	X		X							
0,9	1,9	X		X							
1,3	2,3	X		X							
1,5	2,3	X		X	X			X			
2	3	X		X	X			X			X
2,5	3,8	X	X	X	X			X			X
3	4,5	X	X	X	X	X	X	X	X		X
4	6		X		X	X	X	X	X		X
5	7,5		X		X	X	X	X	X	X	
6	9				X	X	X	X	X	X	
7	10,5					X	X		X	X	
8	12					X	X		X	X	
10	16						X			X	
12	18						X				

4 Technical requirements

The bits must have a complete heat treatment.

The technical specifications of bits are the same as those for screwdrivers in accordance with ISO 2936.

5 Torque test

The drive end shall be fully engaged in a female holder in accordance with ISO 1173. The drive end shall be inserted in a test socket adapter with a minimum hardness of 62 HRC as used for hexagon socket screw keys in accordance with ISO 2936.

The test force shall be applied smoothly until the minimum torque value given in [Table 2](#) is reached or until the tool fractures or deforms before this torque value is reached.

Following the application of the minimum test torque, any resulting damage or deformation shall not affect the usability of the tool.

Table 2 — Torque test

Nominal width across flats <i>s</i>	Minimum Rockwell hardness of bits	Minimum proof torque ^a M_d N · m
0,7	56 HRC	0,1
0,9		0,2
1,3		0,6
1,5		1,0
2		2,2
2,5		4,4
3		7,7
4		19
5		35
6		60
7		93
8		139
10		255
12		429

^a Minimum proof torque = 1,16 M_d ISO 2936.

6 Designation

A screwdriver bit according to this part of ISO 2351 is designated by the following:

- a) "Bit";
- b) a reference to this part of ISO 2351 (i.e. ISO 2351-3);
- c) the form and nominal dimensions of the drive end (in accordance with ISO 1173);
- d) the nominal width across the flats of the tip, *s* (in accordance with ISO 2936).

EXAMPLE A screwdriver bit for hexagon socket screws with a drive end E 11,2 (in accordance with ISO 1173) and a nominal width across the flats of the tip, *s*, (in accordance with ISO 2936) of 6 is designated as follows:

Bit ISO 2351-3 E 11,2 - 6

7 Marking

Screwdriver bits in accordance with this part of ISO 2351 shall be marked permanently and legibly with

- a) the name of the manufacturer or suppliers, and
- b) the nominal width across flat, *s*.

For male hexagons A 3 and C 4, the marking shall be given only on the smallest commonly used packaging unit.

Bibliography

- [1] ISO 1703, *Assembly tools for screws and nuts — Designation and nomenclature*

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services

Tel: +44 845 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 845 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com



...making excellence a habit.™