

# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 4580

ISO/TC 20/SC 4

Secretariat: DIN

Voting begins on:  
2021-02-16

Voting terminates on:  
2021-05-11

---

---

## Aerospace — Internal drive, TORX PARALOBE, driver bit — Geometrical definition, gaging and technical requirements

ICS: 49.030.01

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[ISO/DIS 4580](https://standards.iteh.ai/catalog/standards/sist/9d92faaf-dd1b-4695-bf8e-b987503b8d48/iso-dis-4580)

<https://standards.iteh.ai/catalog/standards/sist/9d92faaf-dd1b-4695-bf8e-b987503b8d48/iso-dis-4580>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.



Reference number  
ISO/DIS 4580:2021(E)

© ISO 2021

## iTeh STANDARD PREVIEW (standards.iteh.ai)

ISO/DIS 4580

<https://standards.iteh.ai/catalog/standards/sist/9d92faaf-dd1b-4695-bf8e-b987503b8d48/iso-dis-4580>



### **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions .....	1
3.1 Driver bit.....	1
3.2 Recess.....	1
4 Basic driver bit configuration .....	1
4.1 General.....	1
4.2 Basic driver bit configuration dimensions — metric.....	2
4.3 Basic driver bit configuration dimensions — inch .....	3
4.4 Driver bit designation .....	4
5 Driver bit inspection.....	5
5.1 Driver bit gaging equipment.....	5
5.2 Driver bit gaging procedure.....	5
5.3 Driver bit inspection gage dimensions — metric.....	6
5.4 Driver bit inspection gage dimensions — inch .....	6
6 Driver bit torque test.....	7
6.1 Driver bit torque test apparatus .....	7
6.2 Torque test fixture.....	7
6.3 Torque wrench/Torsion machine .....	9
7 Driver bit torque test procedure.....	9

## 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](http://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](http://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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 4, *Aerospace fastener systems*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

ISO draws attention to the fact that it is claimed that compliance with this document may involve the use of a US patent "DRIVE SYSTEM WITH FULL SURFACE DRIVE CONTACT" 10,697,499 B2. ISO takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ISO that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ISO. Information may be obtained from:

Acument Intellectual Properties, LLC  
6125 Eighteen Mile Road  
Sterling Heights, MI 48314  
U.S.A.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO shall not be held responsible for identifying any or all such patent rights.

Acument Intellectual Properties, LLC  
6125 Eighteen Mile Road  
Sterling Heights, MI 48314  
U.S.A.

ITEH STANDARD PREVIEW  
(standards.iteh.ai)

ISO/DIS 4580  
<https://standards.iteh.ai/catalog/standards/sist/9d92faaf-dd1b-4695-bf8e-b987503b8d48/iso-dis-4580>

## **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

ISO/DIS 4580

<https://standards.iteh.ai/catalog/standards/sist/9d92faaf-dd1b-4695-bf8e-b987503b8d48/iso-dis-4580>

# Aerospace — Internal drive, TORX PARALOB, driver bit — Geometrical definition, gaging and technical requirements

## 1 Scope

This international standard specifies basic dimensions, characteristics and engineering requirements for TORX® PARALOB® driver bits used with aerospace fasteners.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4579, *Aerospace — Drives, internal, TORX PARALOB drive — Geometrical definition, gaging and technical requirements*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1 Driver bit

Tool to induce a torque into a fastener's recess

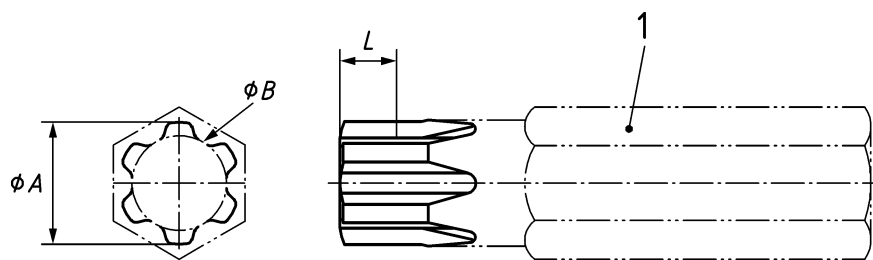
### 3.2 Recess

Geometry in a fastener that allows attaching a tool in order to induce a torque to enable tightening and untightening of a fastener

## 4 Basic driver bit configuration

### 4.1 General

The basic driver bit configuration shall be in accordance with Figure 1. Driver bits according to this standard shall be used in conjunction with fasteners having an internal TORX® PARALOB® drive according to ISO 4579.

**Key**

- $\phi A$  Configuration diameter  
 $\phi B$  Configuration inscribed diameter  
 $L$  Configuration length  
1 Driver bit marking

**Figure 1 — Basic driver bit configuration**

The drive size descriptor shall appear on surface of driver bit. The manufacturer's symbol shall also appear on the surface of driver bit.

Example:

PARALOBE 25SI

## 4.2 Basic driver bit configuration dimensions — metric

**Table 1 — Driver bit dimensions — metric**

Drive code	Drive size descriptor	Configuration diameter mm	Configuration inscribed diameter mm	Configuration length min. mm	Configuration torque min. Nm
001	1SI	0,89	0,64	0,38	0,175
002	2SI	1,02	0,71	0,46	0,256
003	3SI	1,21	0,84	0,53	0,424
004	4SI	1,37	0,99	0,61	0,662
005	5SI	1,50	1,10	0,64	0,891
006	6SI	1,80	1,38	0,76	1,65
007	7SI	2,10	1,59	0,91	2,51
008	8SI	2,44	1,85	1,07	4,01
009	9SI	2,64	2,01	1,12	5,11
010	10SI	2,90	2,18	1,22	6,69
015	15SI	3,45	2,64	1,47	11,6
020	20SI	4,08	3,15	1,70	19,5
025	25SI	4,69	3,56	1,96	28,9
027	27SI	5,27	4,08	2,18	42,4
030	30SI	5,84	4,51	2,44	57,6
040	40SI	7,02	5,41	2,95	99,9
045	45SI	8,27	6,48	3,48	167



Drive code	Drive size descriptor	$\varnothing A$ Configuration diameter mm	$\varnothing B$ Configuration inscribed diameter mm	L Configuration length min. mm	Configuration torque min. Nm
050	50SI	9,35	7,21	3,99	237
055	55SI	11,86	9,42	5,08	504
060	60SI	14,02	10,92	6,10	810
070	70SI	16,45	12,93	7,19	1 320
080	80SI	18,59	14,43	8,18	1 890
090	90SI	21,12	16,60	9,32	2 810
100	100SI	23,46	18,45	10,36	3 850
110	110SI	25,36	19,38	11,28	4 700

#### 4.3 Basic driver bit configuration dimensions — inch

Table 2 — Driver bit dimensions — inch<sup>a</sup>

Drive code	Drive size descriptor	$\varnothing A$ Configuration diameter inch	$\varnothing B$ Configuration inscribed diameter inch	L Configuration length min. inch	Configuration torque min. lbf-in
001	1SI	0.035	0.025	0.015	1.55
002	2SI	0.040	0.028	0.018	2.27
003	3SI	0.048	0.033	0.021	3.75
004	4SI	0.054	0.039	0.024	5.86
005	5SI	0.059	0.044	0.025	7.89
006	6SI	0.071	0.055	0.030	14.6
007	7SI	0.083	0.063	0.036	22.2
008	8SI	0.096	0.073	0.042	35.5
009	9SI	0.104	0.079	0.044	45.2
010	10SI	0.114	0.086	0.048	59.2
015	15SI	0.136	0.104	0.058	103
020	20SI	0.161	0.124	0.067	173
025	25SI	0.185	0.140	0.077	256
027	27SI	0.208	0.161	0.086	375
030	30SI	0.230	0.178	0.096	510
040	40SI	0.277	0.213	0.116	884
045	45SI	0.326	0.255	0.137	1 480
050	50SI	0.368	0.284	0.157	2 100
055	55SI	0.467	0.371	0.200	4 460
060	60SI	0.552	0.430	0.240	7 170
070	70SI	0.648	0.509	0.283	11 700