DRAFT INTERNATIONAL STANDARD

ISO/DIS 4579

ISO/TC **20**/SC **4**	Secretariat: **DIN**
Voting begins on: **2021-02-08**	Voting terminates on: **2021-05-03**

Aerospace — Drives, internal, TORX PARALOBE drive — Geometrical definition, gaging and technical requirements

ICS: 49.030.01

This document is circulated as received from the committee secretariat.

Reference number
ISO/DIS 4579:2021(E)

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Published in Switzerland

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Foreword

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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.

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 licenses 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:

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Aerospace — Drives, internal, TORX PARALOBE drive — Geometrical definition, gaging and technical requirements

1 Scope

This international standard specifies basic dimensions, characteristics and engineering requirements for TORX® PARALOBE® recesses in 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 4580, *Aerospace —Internal drive, TORX® PARALOBE® driver bit — Geometrical definition, gaging and technical requirements*

NASM1312-25, *Fastener Test Methods – Method 25 – Driving Recess Torque Quality Conformance Test*

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

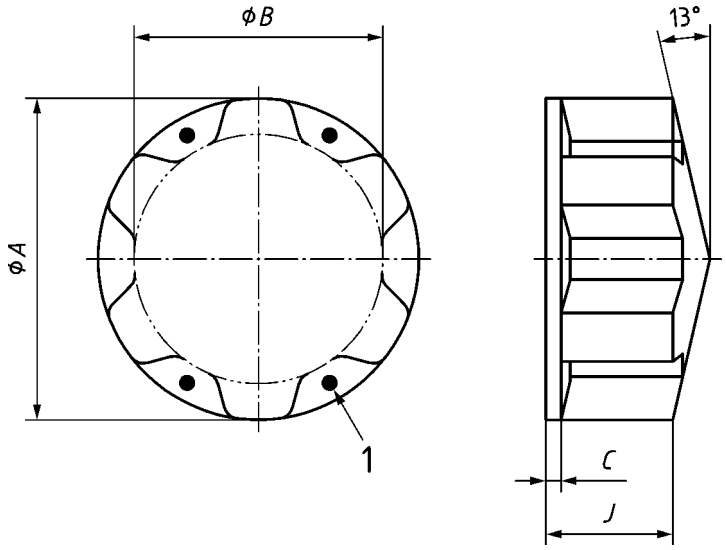
3.2
Driver bit
Tool to induce a torque into a fastener's recess

3.3
Configuration
Shape and geometry of the cross section of a recess or external drive

3.4
Optimum recess torque
The optimum torque in a recess is reached when the recess is able to transfer the ultimate torque of the driver bit

4 Basic fastener recess configuration

The basic recess configuration shall be in accordance with Figure 1.



Key

⌀A Recess diameter

⌀B Recess inscribed diameter

C Recess counterbore depth (per fastener standard)

J Recess depth (per fastener standard)

1 Recess trademark (The recess trademark appears as four raised dots as shown and is used for drive sizes 10SI and larger)

Figure 1 — Basic recess configuration

4.1 Recess dimensions — metric and inch

Table 1 — Recess dimensions — metric and inch[a]

Drive code	Drive size descriptor	⌀A Recess diameter		⌀B Recess inscribed diameter	
		mm	inch	mm	inch
001	1SI	0,94	0.037	0,69	0.027
002	2SI	1,07	0.042	0,76	0.030
003	3SI	1,27	0.050	0,90	0.036
004	4SI	1,44	0.057	1,05	0.042
005	5SI	1,56	0.062	1,17	0.046
006	6SI	1,87	0.074	1,45	0.057
007	7SI	2,20	0.087	1,69	0.067
008	8SI	2,54	0.100	1,96	0.077
009	9SI	2,74	0.108	2,11	0.083
010	10SI	3,00	0.118	2,29	0.090
015	15SI	3,56	0.140	2,74	0.108
020	20SI	4,18	0.165	3,25	0.128
025	25SI	4,80	0.189	3,67	0.145
027	27SI	5,38	0.212	4,19	0.165
030	30SI	5,96	0.235	4,62	0.182
040	40SI	7,16	0.282	5,55	0.219

Table 1 *(continued)*

Drive code	Drive size descriptor	⌀A Recess diameter		⌀B Recess inscribed diameter	
		mm	inch	mm	inch
045	45SI	8,41	0.331	6,62	0.261
050	50SI	9,49	0.374	7,35	0.290
055	55SI	12,03	0.474	9,59	0.378
060	60SI	14,24	0.561	11,14	0.439
070	70SI	16,66	0.656	13,14	0.518
080	80SI	18,82	0.741	14,66	0.577
090	90SI	21,40	0.843	16,88	0.665
100	100SI	23,74	0.935	18,73	0.738
110	110SI	25,64	1.010	19,66	0.774
[a] The dimensions in Table 1 are rounded. Therefore the general formula for converting inches into mm cannot be used.					

4.2 Recess drive designation

The recess drive designation shall be as shown in the following example:

ISO 4579-025

Drive code (025 — Drive code as listed in Table 1)

Drive standard

5 Recess inspection

5.1 Gaging equipment

The recess is inspected with a penetration gage (see Figure 2).