BS EN ISO 10664:2014

BSI Standards Publication

Hexalobular internal driving feature for bolts and screws

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National foreword

This British Standard is the UK implementation of EN ISO 10664:2014. It supersedes BS EN ISO 10664:2005 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FME/9, Fasteners.

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

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Foreword

This document (EN ISO 10664:2014) has been prepared by Technical Committee ISO/TC 2 "Fasteners" in collaboration with Technical Committee CEN/TC 185 “Fasteners” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2015, and conflicting national standards shall be withdrawn at the latest by April 2015.

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The text of ISO 10664:2014 has been approved by CEN as EN ISO 10664:2014 without any modification.

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Foreword

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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).

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The committee responsible for this document is ISO/TC 2, *Fasteners*, Subcommittee SC 11, *Fasteners with metric external thread*.

This third edition cancels and replaces the second edition (ISO 10664:2005), which has been technically revised with the following changes:

— several sizes of the driving feature have been added with respective values in Tables 1 to 5.

Hexalobular internal driving feature for bolts and screws

1 Scope

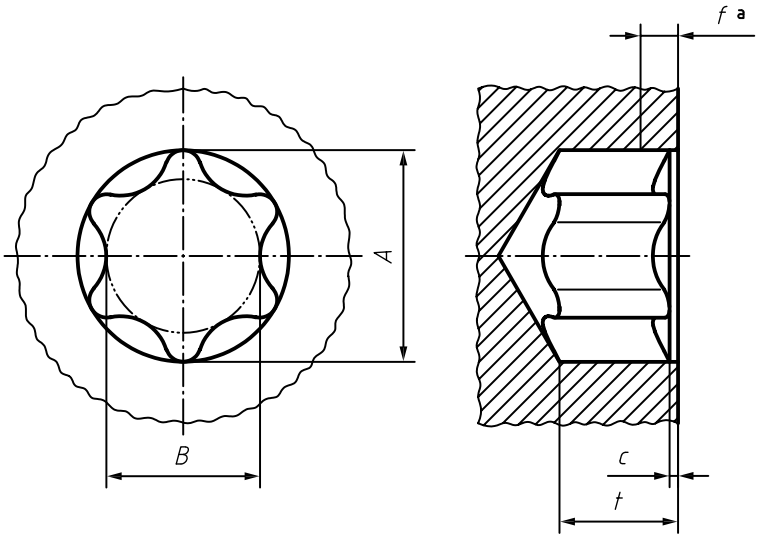
This International Standard specifies the shape and basic dimensions of the hexalobular internal driving feature for bolts and screws, including the gauging method.

The curvature of the contour of the hexalobular internal driving feature is defined by the gauges specified in Tables 3, 4, and 5. Additional information which can be used when drawing the contour is given in Annex A.

The intent of this International Standard is to provide the details necessary for inspection of the hexalobular driving feature. It is not suitable for, nor intended to be used as, a manufacturing standard.

2 Basic dimensions

See Figure 1 and Table 1.



Counterbore: $c \leq 0{,}13$ mm up to socket no. 15

$c \leq 0{,}25$ mm over socket no. 15

Penetration depth, t: see relevant product standard.

[a] See Table 2.

NOTE The contour of the bottom of the socket beyond the gauge is at the option of the manufacturer.

Figure 1 — Basic dimensions

Table 1 — Basic dimensions

Dimensions in millimetres

Hexalobular socket no.	Nominal dimensions[a]	
	A	*B*
1	0,9	0,6
2	1,0	0,7
3	1,2	0,85
4	1,35	1,0
5	1,5	1,1
6	1,75	1,27
7	2,1	1,5
8	2,4	1,75
9	2,6	1,9
10	2,8	2,05
15	3,35	2,4
20	3,95	2,85
25	4,5	3,25
27	5,1	3,68
30	5,6	4,05
40	6,75	4,85
45	7,93	5,64
50	8,95	6,45
55	11,35	8,05
60	13,45	9,6
70	15,7	11,2
80	17,75	12,8
90	20,2	14,4
100	22,4	16

[a] The curvature of the contour of the hexalobular internal driving feature is defined by the gauges specified in Tables 3, 4, and 5.

3 Gauging

3.1 Principle

The hexalobular internal driving feature shall allow the GO gauge (see 3.2) to enter freely to the penetration depth, *t*, as specified in the relevant product standards.

The NO GO gauges (see 3.3.1 and 3.3.2) shall not enter the hexalobular internal driving feature to a depth greater than the fallaway allowance specified in Table 2.

Table 2 — Fallaway allowance

Dimensions in millimetres

Socket no.	1	2	3	4	5	6	7	8	9	10	15	20
Fallaway allowance *f*	0,064	0,070	0,114	0,13	0,22	0,35	0,41	0,48	0,51	0,56	0,67	0,79
Socket no.	25	27	30	40	45	50	55	60	70	80	90	100
Fallaway allowance *f*	0,90	1,02	1,12	1,18	1,39	1,56	1,98	2,35	2,75	3,11	3,53	3,92

All gauging is performed with reference to the top surface of the head. In the case of oval or round top heads, measurements are taken from the actual intersection of the top surface of the head and the hexalobular internal driving feature counterbore.

When using a dial penetration gauge, this should be adjusted to zero while the gauge is pressed against a flat surface, thereby compressing the plunger to make it flush with the gauge reference surface (see Figure 2).

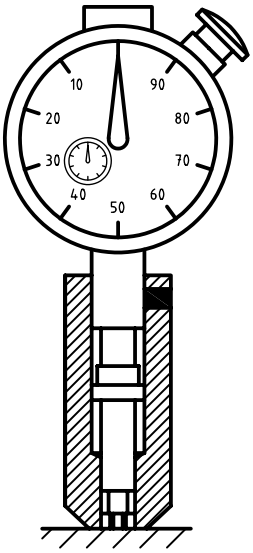
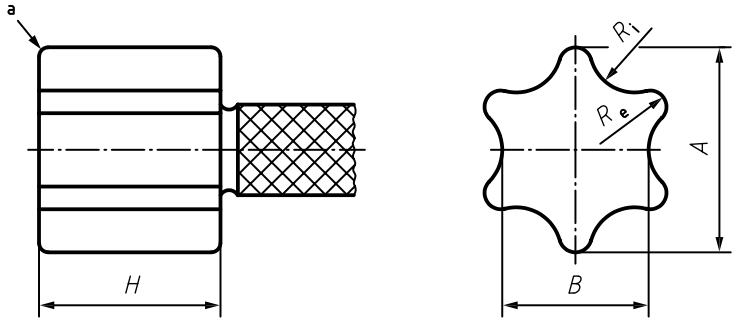


Figure 2 — Dial gauge (zero position)

3.2 GO gauge

The GO gauge dimensions (see Figure 3) shall be within the limits specified in Table 3.



a Radius max. 0,076 mm at juncture of side and face to gauge sizes ≥ no. 10 and max. 0,025 4 mm for gauge sizes < no. 10.

Figure 3 — Dimensions of GO gauge

Table 3 — Limiting sizes of GO gauge dimensions

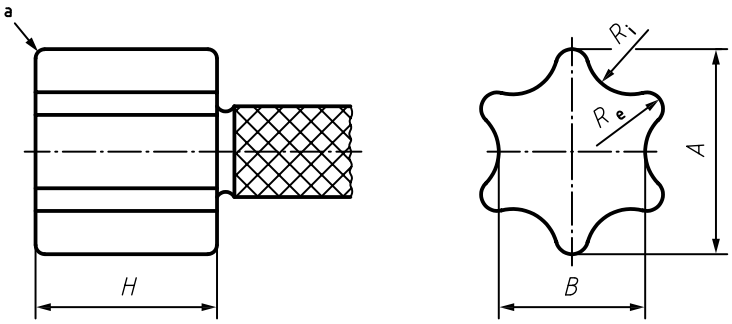
Dimensions in millimetres

Socket no.	*A*		*B*		R_i		R_e		*H*	
	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
1	0,841	0,855	0,592	0,607	0,198	0,204	0,055	0,062	0,64	1,14
2	0,953	0,967	0,674	0,688	0,221	0,227	0,065	0,072	1,15	1,65
3	1,131	1,145	0,800	0,815	0,263	0,270	0,078	0,085	1,15	1,65
4	1,291	1,305	0,912	0,927	0,305	0,312	0,087	0,093	1,15	1,65
5	1,415	1,430	1,013	1,028	0,318	0,342	0,107	0,111	1,15	1,65
6	1,695	1,709	1,210	1,224	0,371	0,396	0,130	0,134	1,33	1,82
7	2,012	2,026	1,437	1,453	0,442	0,450	0,157	0,165	2,54	3,05
8	2,335	2,349	1,672	1,686	0,498	0,523	0,188	0,193	2,54	3,05
9	2,520	2,534	1,809	1,823	0,542	0,566	0,204	0,210	2,79	3,30
10	2,761	2,776	1,979	1,993	0,585	0,609	0,227	0,231	3,05	3,56
15	3,295	3,309	2,353	2,367	0,704	0,728	0,265	0,269	3,30	3,81
20	3,879	3,893	2,764	2,778	0,846	0,871	0,303	0,307	3,56	4,07
25	4,451	4,465	3,170	3,185	0,907	0,932	0,371	0,378	3,94	4,45
27	5,009	5,024	3,564	3,578	1,095	1,120	0,387	0,393	4,19	4,70
30	5,543	5,557	3,958	3,972	1,182	1,206	0,448	0,454	4,44	4,95
40	6,673	6,687	4,766	4,780	1,415	1,440	0,544	0,548	5,08	5,59
45	7,841	7,856	5,555	5,570	1,784	1,808	0,572	0,576	5,71	6,22
50	8,857	8,872	6,366	6,380	1,804	1,828	0,773	0,777	5,97	6,48
55	11,245	11,259	7,930	7,945	2,657	2,682	0,765	0,769	6,22	6,73
60	13,302	13,317	9,490	9,504	2,871	2,895	1,065	1,069	7,68	8,17
70	15,588	15,603	11,085	11,099	3,465	3,489	1,192	1,196	8,46	8,96
80	17,619	17,635	12,646	12,661	3,625	3,629	1,524	1,529	9,4	9,9
90	20,021	20,035	14,232	14,246	4,456	4,480	1,527	1,534	10,06	10,56
100	22,231	22,245	15,820	15,834	4,913	4,937	1,718	1,724	10,85	11,35

3.3 NO GO gauge

3.3.1 Gauging the fallaway of dimensions A and R_e

The NO GO gauge for dimensions A and R_e (see Figure 4) shall have dimensions within the limits specified in Table 4.



a Radius max. 0,076 mm at juncture of side and face for gauge sizes ≥ no. 10 and max. 0,025 4 mm for gauge sizes < no. 10.

Figure 4 — NO GO gauge for dimensions A and R_e

Table 4 — Limiting sizes of dimensions of NO GO gauge for dimensions A and R_e

Dimensions in millimetres

Socket no.	A		B	R_i		R_e		H
	min.	max.	max.	min.	max.	min.	max.	±0,25
1	0,899	0,907	0,587	0,107	0,114	0,084	0,094	0,89
2	1,011	1,019	0,663	0,124	0,132	0,094	0,104	1,4
3	1,214	1,222	0,790	0,137	0,145	0,119	0,130	1,4
4	1,374	1,382	0,917	0,180	0,191	0,132	0,140	1,4
5	1,499	1,506	1,044	0,208	0,221	0,147	0,157	1,4
6	1,778	1,785	1,181	0,231	0,241	0,173	0,180	1,57
7	2,096	2,103	1,359	0,259	0,267	0,203	0,211	2,8
8	2,419	2,425	1,664	0,360	0,370	0,231	0,238	2,79
9	2,604	2,611	1,664	0,323	0,333	0,248	0,257	3,05
10	2,845	2,852	1,956	0,431	0,441	0,269	0,276	3,3
15	3,379	3,385	1,956	0,398	0,408	0,307	0,315	3,56
20	3,963	3,970	2,616	0,602	0,614	0,345	0,353	3,81
25	4,560	4,566	2,868	0,637	0,647	0,429	0,436	4,19
27	5,118	5,126	3,275	0,735	0,747	0,445	0,452	4,45
30	5,652	5,659	3,886	0,939	0,949	0,505	0,513	4,7
40	6,807	6,814	4,661	1,112	1,125	0,612	0,619	5,33
45	7,976	7,983	4,661	1,110	1,123	0,640	0,648	5,97
50	8,992	8,999	6,413	1,628	1,640	0,840	0,848	6,22
55	11,405	11,412	7,684	2,176	2,189	0,845	0,853	6,48
60	13,488	13,495	7,684	2,153	2,164	1,158	1,165	7,92
70	15,774	15,781	10,262	2,545	2,557	1,285	1,292	8,71
80	17,831	17,838	11,760	2,608	2,621	1,628	1,635	9,52

Table 4 *(continued)*

Socket no.	A		B	R_i		R_e		H
	min.	max.	max.	min.	max.	min.	max.	±0,25
90	20,257	20,264	12,827	3,111	3,121	1,648	1,656	10,31
100	22,467	22,473	15,240	4,006	4,018	1,839	1,847	11,10

3.3.2 Gauging the fallaway of dimension *B*

See Figure 5.

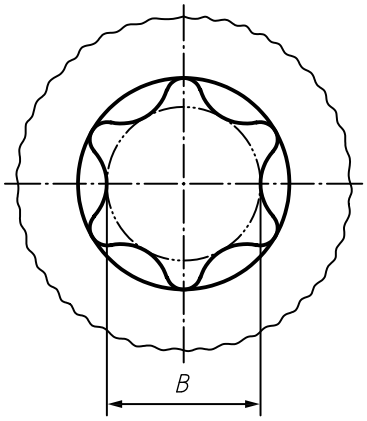


Figure 5 — Cylindrical zone to be gauged

A cylindrical NO GO gauge with diameter as specified in Table 5 shall not enter the hexalobular internal driving feature to a depth greater than the fallaway allowance specified in Table 2.

Table 5 — Diameter of cylindrical NO GO gauge for dimension *B*

Dimensions in millimetres

Socket no.	Diameter of cylindrical NO GO gauge	
	min.	max.
1	0,720	0,725
2	0,810	0,815
3	0,960	0,965
4	1,100	1,105
5	1,200	1,205
6	1,440	1,445
7	1,710	1,715
8	1,920	1,925
9	2,140	2,145
10	2,280	2,285
15	2,760	2,765
20	3,280	3,285
25	3,720	3,725
27	4,260	4,265
30	4,660	4,665
40	5,600	5,605

Table 5 *(continued)*

Socket no.	Diameter of cylindrical NO GO gauge	
	min.	max.
45	6,660	6,665
50	7,380	7,385
55	9,660	9,665
60	11,340	11,345
70	13,340	13,345
80	14,920	14,925
90	17,160	17,165
100	19,020	19,025

4 Designation

The designation shall make reference to this International Standard and the socket number.

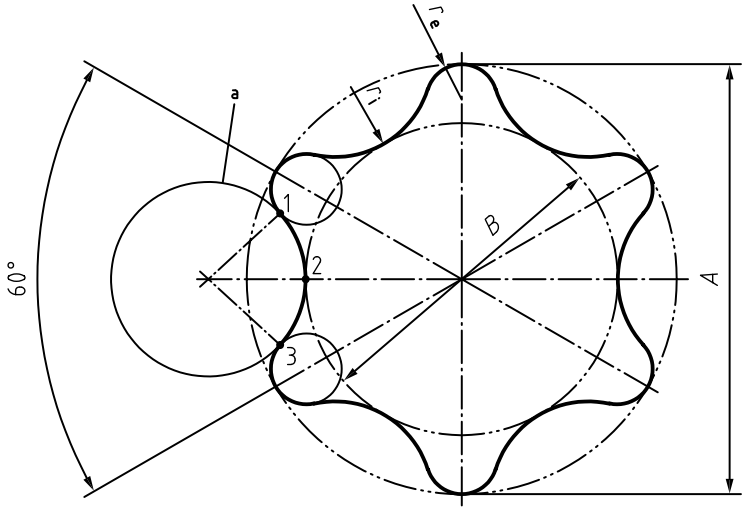
EXAMPLE A hexalobular internal driving feature, socket no. 20, is designated as follows:

Hexalobular internal driving feature ISO 10664 – 20

Annex A
(informative)

Representation of hexalobular internal driving feature contour

The correlations of dimensions given in Figure A.1 are intended to support the drawing of the driving feature only, e.g. when using a CAD system.



Key

B approximately 0,72 A

r_e approximately 0,1 A

r_i approximately 0,175 A

a The circle is tangential to the socket contour at points 1, 2, and 3.

Figure A.1 — Representation of hexalobular internal driving feature

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