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**INTERNATIONAL  
STANDARD**

**ISO  
10664**

Second edition  
2005-07-01

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**Hexalobular internal driving feature  
for bolts and screws**

*Empreinte à six lobes internes pour vis*



Reference number  
ISO 10664:2005(E)

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## Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 10664 was prepared by Technical Committee ISO/TC 2, *Fasteners*.

This second edition cancels and replaces the first edition (ISO 10664:1999), which has been technically revised.

## Hexalobular internal driving feature for bolts and screws

### 1 Scope

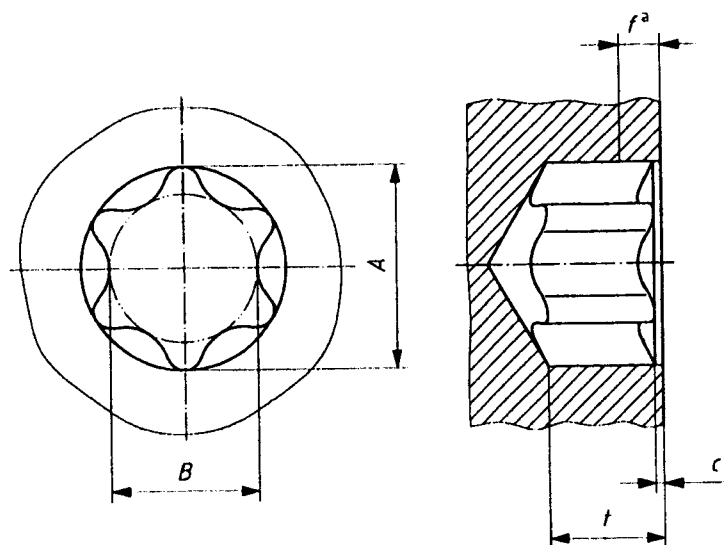
This International Standard specifies the shape and basic dimensions of the hexalobular internal driving feature for bolts and screws, including the gauging method.

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.

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

<sup>a</sup> See Table 2.

Figure 1 — Basic dimensions

Table 1 — Basic dimensions

Dimensions in millimetres

| Hexalobular socket<br>No. | Nominal dimensions <sup>a</sup> |      |
|---------------------------|---------------------------------|------|
|                           | A                               | B    |
| 6                         | 1,75                            | 1,27 |
| 8                         | 2,4                             | 1,75 |
| 10                        | 2,8                             | 2,05 |
| 15                        | 3,35                            | 2,4  |
| 20                        | 3,95                            | 2,85 |
| 25                        | 4,5                             | 3,25 |
| 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   |

<sup>a</sup> 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.              | 6    | 8    | 10   | 15   | 20   | 25   | 30   | 40   | 45   | 50   | 55   | 60   | 70   | 80   | 90   | 100  |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Fallaway allowance, $f$ | 0,35 | 0,48 | 0,56 | 0,67 | 0,79 | 0,90 | 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.

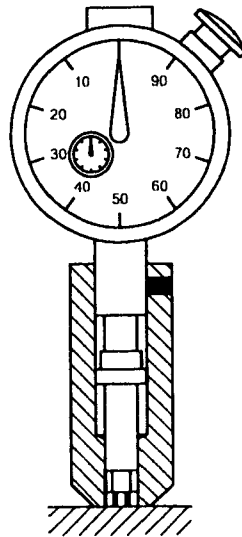
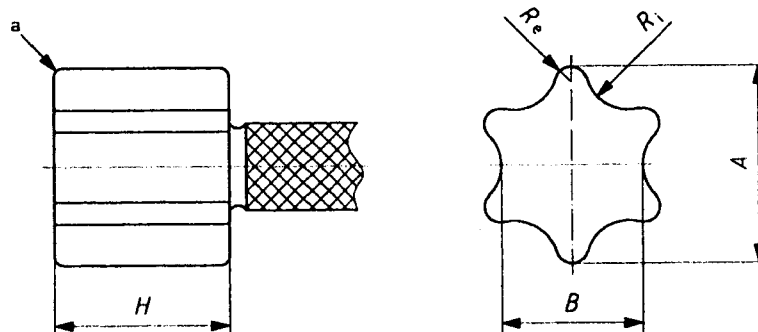


Figure 2 — Dial gauge (zero position)

### 3.2 GO gauge

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



- <sup>a</sup> Radius max. 0,076 mm at juncture of side and face to gauge sizes  $\geq$  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

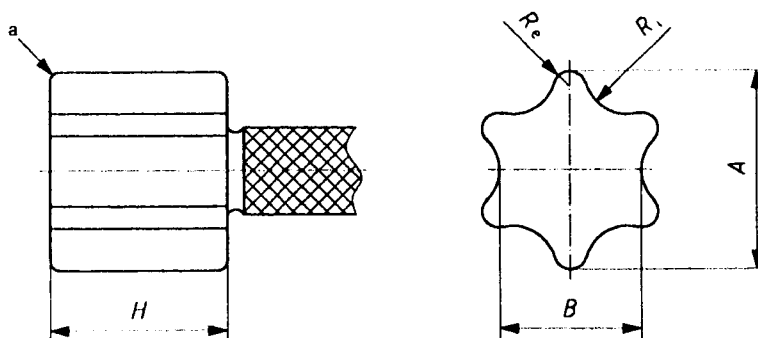
Dimensions in millimetres

| Socket No. | A      |        | B      |        | R <sub>i</sub> |       | R <sub>e</sub> |       | H     |       |
|------------|--------|--------|--------|--------|----------------|-------|----------------|-------|-------|-------|
|            | min.   | max.   | min.   | max.   | min.           | max.  | min.           | max.  | min.  | max.  |
| 6          | 1,695  | 1,709  | 1,210  | 1,224  | 0,371          | 0,396 | 0,130          | 0,134 | 1,33  | 1,82  |
| 8          | 2,335  | 2,349  | 1,672  | 1,686  | 0,498          | 0,523 | 0,188          | 0,193 | 2,54  | 3,05  |
| 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  |
| 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 gauges

3.3.1 Gauging the fallaway of dimensions A and R<sub>e</sub>

The NO GO gauge for dimensions A and R<sub>e</sub> (see Figure 4) shall have dimensions within the limits specified in Table 4.



<sup>a</sup> 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<sub>e</sub>

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

Dimensions in millimetres

| Socket No. | $A$    |        | $B$    | $R_i$ |       | $R_e$ |       | $H$<br>$\pm 0,25$ |
|------------|--------|--------|--------|-------|-------|-------|-------|-------------------|
|            | min.   | max.   | max.   | min.  | max.  | min.  | max.  |                   |
| 6          | 1,778  | 1,785  | 1,181  | 0,231 | 0,241 | 0,173 | 0,180 | 1,57              |
| 8          | 2,419  | 2,425  | 1,664  | 0,36  | 0,37  | 0,231 | 0,238 | 2,79              |
| 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              |
| 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 | 11,76  | 2,608 | 2,621 | 1,628 | 1,635 | 9,52              |
| 90         | 20,257 | 20,264 | 12,827 | 3,111 | 3,121 | 1,648 | 1,656 | 10,31             |
| 100        | 22,467 | 22,473 | 15,24  | 4,006 | 4,018 | 1,839 | 1,847 | 11,1              |

### 3.3.2 Gauging the fallaway of dimension $B$

See Figure 5.

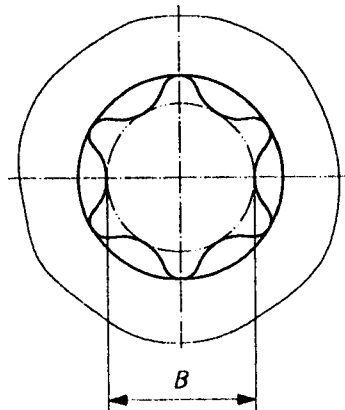


Figure 5 — Cylindrical zone to be gauged

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.   |
| 6          | 1,440                               | 1,445  |
| 8          | 1,920                               | 1,925  |
| 10         | 2,280                               | 2,285  |
| 15         | 2,760                               | 2,765  |
| 20         | 3,280                               | 3,285  |
| 25         | 3,720                               | 3,725  |
| 30         | 4,660                               | 4,665  |
| 40         | 5,600                               | 5,605  |
| 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.

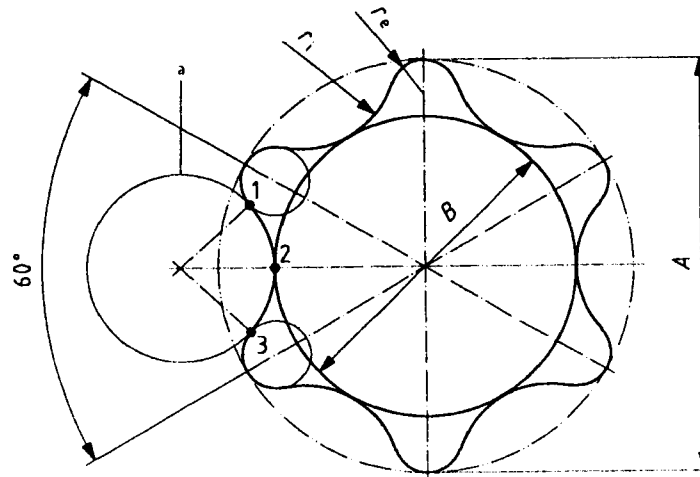
EXAMPLE A hexalobular internal driving feature, socket No. 20, is designated as follows:

**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.



$$B \approx 0,72 A$$

$$r_e \approx 0,1 A$$

$$r_i \approx 0,175 A$$

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

**Figure A.1 — Representation of hexalobular internal driving feature**

**ISO 10664:2005(E)**

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**ICS 21.060.10**

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