
International Standard



4228

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Spanners and wrenches — Spline drive ends for power socket wrenches

Outils de manœuvre pour vis et écrous — Entraînement à cannelures pour douilles machines

First edition — 1986-10-01

STANDARDSISO.COM : Click to view the full PDF of ISO 4228:1986

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 4228 was prepared by Technical Committee ISO/TC 29, *Small tools*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

STANDARDSISO.COM : Click to view the full PDF of ISO 4228:1986

Spanners and wrenches — Spline drive ends for power socket wrenches

1 Scope and field of application

This International Standard defines certain dimensions for the involute splines used for driving power socket wrenches, and for the ends of these sockets.

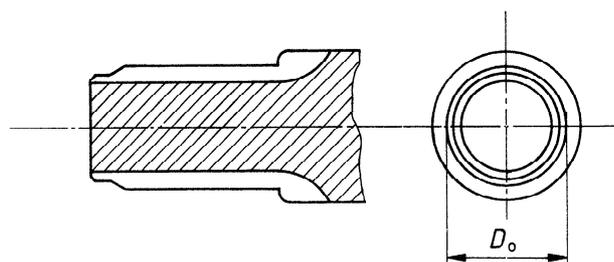
It covers both the male end dimensions, and the female end dimensions.

The pitch p/p_s as given in the tables defines the spline dimensions. The first number, p , is the diametral pitch; the second number, p_s , is the stub pitch and denotes, as the fractional part of an inch, the basic radial length of engagement, both above and below the pitch circle. The module, m , denotes the number of units of pitch diameter per tooth, in millimetres.

2 Dimensions

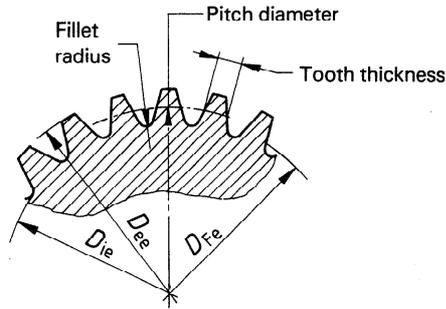
2.1 Male driving

2.1.1 Socket end



| Size number | Nominal dimension D_o | | Number of teeth | Module m mm | Pitch p/p_s | Pressure angle α° | Pitch diameter | |
|-------------|-------------------------|-------|-----------------|------------------|---------------|-------------------------------|----------------|---------|
| | mm | in | | | | | mm | in |
| 4 | 31,75 | 1.250 | 14 | 2,116 7 | 12/24 | 30 | 29,634 | 1.166 7 |
| 5 | 41,28 | 1.625 | 14 | 2,540 0 | 10/12 | 20 | 35,560 | 1.400 0 |
| 5A | 48,26 | 1.900 | 18 | 2,540 0 | 10/20 | 30 | 45,720 | 1.800 0 |
| 6 | 60,33 | 2.375 | 18 | 3,175 0 | 8/16 | 30 | 57,150 | 2.250 0 |

2.1.2 Male end spline proportion



Dimensions in millimetres

| Size number | Major diameter D_{ee} | | Form diameter D_{Fe} | Minor diameter D_{je} | | Fillet radius | Tooth effective thickness | |
|-------------|-------------------------|--------|------------------------|-------------------------|--------|---------------|---------------------------|-------|
| | max. | min. | | max. | min. | | max. | min. |
| 4 | 31,750 | 31,623 | 27,414 | 25,824 | 25,494 | 0,97 | 3,286 | 3,213 |
| 5 | 41,021 | 40,919 | 33,416 | 31,750 | 31,369 | 1,27 | 4,953 | 4,826 |
| 5A | 48,260 | 48,133 | 43,078 | 41,148 | 41,020 | 1,12 | 3,952 | 3,876 |
| 6 | 60,325 | 60,198 | 53,861 | 51,435 | 50,978 | 1,40 | 4,947 | 4,864 |

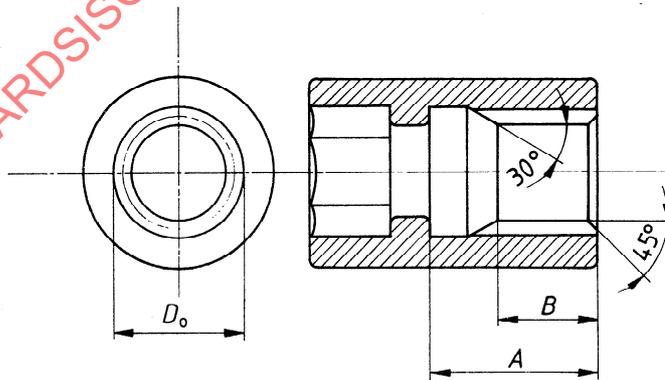
Dimensions in inches

| | | | | | | | | |
|----|---------|---------|---------|---------|---------|-------|---------|---------|
| 4 | 1.250 0 | 1.245 0 | 1.079 3 | 1.016 7 | 1.003 7 | 0.038 | 0.129 4 | 0.126 5 |
| 5 | 1.615 0 | 1.611 0 | 1.315 6 | 1.250 0 | 1.235 0 | 0.050 | 0.195 4 | 0.190 0 |
| 5A | 1.900 0 | 1.895 0 | 1.695 0 | 1.620 0 | 1.615 0 | 0.044 | 0.155 6 | 0.152 6 |
| 6 | 2.375 0 | 2.370 0 | 2.120 5 | 2.025 0 | 2.007 0 | 0.055 | 0.194 8 | 0.191 5 |

NOTE — Concerning length of engagement, the male ends shall be made to fit the female ends exactly. Special care shall be taken that the locking device is not subjected to any torsional or axial load during use.

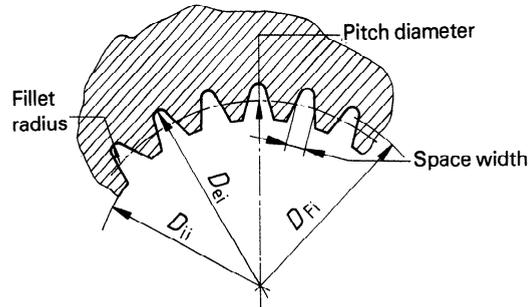
2.2 Female driving

2.2.1 Socket end



| Size number | Nominal dimension D_o | | Number of teeth | Module m mm | Pitch p/p_s | Pressure angle α° | A min. | | B max. | | Pitch diameter | |
|-------------|-------------------------|---------|-----------------|------------------|---------------|-------------------------------|--------|-------|--------|-------|----------------|---------|
| | mm | in | | | | | mm | in | mm | in | mm | in |
| 4 | 31,75 | 1.250 0 | 14 | 2,116 7 | 12/24 | 30 | 38,1 | 1.500 | 19,1 | 0.750 | 29,634 | 1.166 7 |
| 5 | 41,28 | 1.625 0 | 14 | 2,540 0 | 10/12 | 20 | 47,6 | 1.875 | 23,0 | 0.906 | 35,560 | 1.400 0 |
| 5A | 48,26 | 1.900 0 | 18 | 2,540 0 | 10/20 | 30 | 50,8 | 2.000 | 24,8 | 0.980 | 45,720 | 1.800 0 |
| 6 | 60,33 | 2.375 0 | 18 | 3,175 0 | 8/16 | 30 | 53,8 | 2.125 | 27,8 | 1.093 | 57,150 | 2.250 0 |

2.2.2 Female end spline proportion



Dimensions in millimetres

| Size number | Major diameter D_{ei} | | Form diameter D_{Fi} | Minor diameter D_{ii} | | Fillet radius | Effective space width min. |
|-------------|-------------------------|--------|------------------------|-------------------------|--------|---------------|----------------------------|
| | max. | min. | | max. | min. | | |
| 4 | 33,774 | 33,444 | 31,852 | 27,693 | 27,516 | 0,64 | 3,325 |
| 5 | 42,799 | 42,418 | 41,549 | 34,594 | 34,341 | 1,40 | 5,030 |
| 5A | 50,673 | 50,292 | 48,362 | 43,434 | 43,180 | 0,84 | 3,990 |
| 6 | 63,322 | 62,865 | 60,439 | 54,279 | 53,975 | 1,04 | 4,986 |

Dimensions in inches

| | | | | | | | |
|----|---------|---------|---------|---------|---------|-------|---------|
| 4 | 1.329 7 | 1.316 7 | 1.254 0 | 1.090 3 | 1.083 3 | 0.025 | 0.130 9 |
| 5 | 1.685 0 | 1.670 0 | 1.635 8 | 1.362 0 | 1.352 0 | 0.055 | 0.198 0 |
| 5A | 1.995 0 | 1.980 0 | 1.904 0 | 1.710 0 | 1.700 0 | 0.033 | 0.157 1 |
| 6 | 2.493 0 | 2.475 0 | 2.379 5 | 2.137 0 | 2.125 0 | 0.041 | 0.196 3 |

STANDARDSISO.COM : Click to view the full PDF of ISO 4228:1986

This page intentionally left blank

STANDARDSISO.COM : Click to view the full PDF of ISO 4228:1986