INTERNATIONAL STANDARD ISO 237

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

Rotating tools with parallel shanks — Diameters of shanks and sizes of driving squares

Outils tournants à queue cylindrique — Diamètres des queues et dimensions des carrés d'entraînement

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 29 has reviewed ISO Recommendation R 237 and found it technically suitable for transformation. International Standard ISO 237 therefore replaces ISO Recommendation R 237-1961 to which it is technically identical.

ISO Recommendation R 237 was approved by the Member Bodies of the following countries :

Austria	India	Romania
Belgium	Italy	Sweden
Czechoslovakia	Mexico	Switzerland
France	Netherlands	United Kingdom
Germany	Pakistan	U.S.S.R.
Greece	Poland	
Hungary	Portugal	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

U.S.A.

The Member Body of the following country disapproved the transformation of ISO/R 237 into an International Standard :

Austria

Printed in Switzerland

Rotating tools with parallel shanks — Diameters of shanks and sizes of driving squares

1 SCOPE AND FIELD OF APPLICATION

This International Standard lays down the shank diameters and driving square sizes for rotating tools with parallel shanks, such as reamers, screwing taps, etc.

It comprises two series of dimensions, a principal series and a secondary series, and gives for each of them the dimensions in millimetres and the corresponding dimensions in inches.

In each of the two series, the dimensions of driving squares for a given shank diameter are shown.

The complete range of diameters is divided into a certain number of diameter steps, for each of which the corresponding standard square is given either in the principal series, or in the secondary series for use in cases where a finer subdivision is absolutely necessary in the small diameters.

In the metric tables, the values of the across flats *a* of the squares and the preferred diameters *d* are scaled in accordance with the R20 series of preferred numbers; the limits of the diameter steps are the intermediate values of the R40 series of preferred numbers.

In the inch tables, the values *a* and *d* are exact conversions of the corresponding metric values, expressed to three decimal places for the squares and to four decimal places for the diameters.

In the principal series, the tables give not only the two limits for each diameter step, but in addition, for each step, the value of the preferred diameter (see list below), which corresponds to the theoretical optimum ratio $a/d = 0{,}80$ between the across flats of the square and the diameter of the shank.

Within any given step, this ratio a/d varies between the extreme limits 0,75 and 0,85 for the principal series, and 0,80 and 0,85 for the secondary series, taking account of the nominal values of *a* and *d* only. If the tolerances on *a* and *d* are taken into account, it never falls below 0,72, even in the worst cases.

2 PREFERRED DIAMETERS

Millimetres		Inches	
1,12	11,2	0.044 1	0.440 9
1,25	12,5	0.049 2	0.492 1
1,40	14,0	0.055 1	0.551 2
1,60	16,0	0.063 0	0.629 9
1,80	18,0	0.070 9	0.708 7
2,00	20,0	0.078 7	0.787 4
2,24	22,4	0.088 2	0.881 9
2,50	25,0	0.098 4	0.984 2
2,80	28,0	0.110 2	1.102 4
3,15	31,5	0.124 0	1.240 2
3,55	35,5	0.139 8	1.397 6
4,00	40,0	0.157 5	1.574 8
4,50	45,0	0.177 2	1.771 7
5,00	50,0	0.196 9	1.968 5
5,60	56,0	0.220 5	2.204 7
6,30	63,0	0.248 0	2.480 3
7,10	71,0	0.279 5	2.795 3
8,00	80,0	0.315 0	3.149 6
9,00	90,0	0.354 3	3.543 3
10,00	100.0	0.393 7	3.937 0

3 INTERCHANGEABILITY

The dimensions in millimetres and in inches have been determined in such a way as to ensure that the squares corresponding to a given diameter step are identical, whether expressed in millimetres or in inches.

Furthermore, the limits of the diameter steps correspond exactly, so that two diameters, whether in millimetres or in inches, belonging to the same diameter range have the same driving square.