

Specification for

Pipe threads for tubes and fittings where pressure-tight joints are not made on the threads (metric dimensions)

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Foreword

This revision of BS 2779 has been prepared under the direction of the Piping Systems Components Standards Committee. It supersedes BS 2779:1973, which is withdrawn.

This standard is based on and is technically equivalent to the two Parts of ISO 228 “Pipe threads where pressure-tight joints are not made on the threads”, namely ISO 228/1-1982 “Designation, dimensions and tolerances”, and ISO/2-1980 “Verification by means of limit gauges”; both Parts are published by the International Organization for Standardization (ISO).

This standard provides a range of thread sizes which are considered to be necessary to fulfil general requirements. Dimensions are given in metric units only.

For ease of production, it has been found convenient to reproduce the figures from ISO 228/2-1980 for Figure 4, Figure 5, Figure 7, Figure 10 and Figure 11 of this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover pages i and ii, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies requirements for the designation and dimensions of Whitworth form fastening pipe threads having a thread size designation in the range 1/16 to 6 inclusive. This standard applies to pipe threads where pressure-tight joints are not made on the threads¹⁾. Dimensions are given in metric units. The tolerance on the crests of the threads allows for truncation (see 4.1).

NOTE 1 The pipe threads covered by this standard are generally used for fastening purposes, such as the mechanical assembly of the component parts of fittings, cocks and valves, etc.

NOTE 2 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Symbols

For the purposes of this British Standard, the following symbols apply.

Symbol	Term
b_3	Width of clearance groove at the major and minor diameter of the thread profile with shortened flanks.
d	Basic major diameter of the external thread.
d_1	Basic minor diameter of the external thread ($d_1 = d - 1.280\ 654P$).
d_2	Basic pitch diameter of the external thread ($d_2 = d - 0.640\ 327P$).
D	Basic major diameter of the internal thread ($D = d$).
D_1	Basic minor diameter of the internal thread ($D_1 = D - 1.280\ 654P = d_1$).
D_2	Basic pitch diameter of the internal thread ($D_2 = D - 0.640\ 327P = d_2$).
h	Height of the thread profile with rounded crests and roots.
H	Height of the triangle of the thread profile.
m	Distance between the middle of the tolerance zone T_R of the threaded ring gauge and the middle of the tolerance zone T_{CP} of the GO check plug.
P	Pitch.
r	Radius of rounded crests and roots.
s	Displacement of the clearance groove with shortened flanks.
S	Tolerance on b_3 .

T_{cp}	Tolerance on the pitch diameter of GO and NOT GO threaded check plugs and wear check plugs.
T_d	Tolerance on the basic major diameter of the external thread.
T_{d2}	Tolerance on the basic pitch diameter of the external thread.
T_{D1}	Tolerance on the basic minor diameter of the internal thread.
$T_{D,2}$	Tolerance on the basic pitch diameter of the internal thread.
T_{PL}	Tolerance on the pitch diameter of GO and NOT GO threaded plug gauges.
T_R	Tolerance on the pitch diameter of GO and NOT GO threaded ring gauges.
u	A length equal to twice the radial height of rounding at crest of root and thread ($u = 0.147\ 84P$).
W_{GO}	Average amount available for the permissible wear of GO threaded plug gauge and GO threaded ring gauge.
W_{NG}	Average amount available for the permissible wear of NOT GO threaded plug gauge and NOT GO threaded ring gauge.
Z_{PL}	Distance between the middle of the tolerance zone T_{PL} of the GO threaded plug gauge and the lower limit of the thread.
Z_R	Distance between the middle of the tolerance zone T_R of the GO threaded ring gauge and the upper limit of the thread.

3 Classification and designation

3.1 Classes of external and internal threads

For internal threads, one class of tolerance on the pitch diameter has been provided. For external threads, two classes of tolerance on the pitch diameter have been established, as follows:

- class A tolerance, entirely negative value equivalent to the internal thread tolerance (see Table 1);
- class B tolerance, entirely negative value twice that of the class A tolerance (see Table 1).

NOTE 1 Where no class reference is stated, class B should be assumed.

NOTE 2 The tolerance zones are shown in Figure 1.

NOTE 3 The choice of fit for a particular purpose rests with the purchaser's designer.

¹⁾ Reference should be made to BS 21 for requirements for pipe threads where pressure-tight joints are made on the threads.

3.2 Designation

Internal and external threads shall be designated by the letter “G” followed by the thread size designation given in Table 1, and, for external threads, the class reference: for example, G ½ for an internal thread, G ½ A for a class A external thread, and G ½ B for a class B external thread.

NOTE Where no class reference is stated, class B should be assumed.

Where threads are full form (see 4.1.2), the letter “F” shall be added to the designation, e.g. G ½ F for internal threads and G ½ AF for class A external threads.

Where external threads have the special truncated Whitworth form in accordance with Table 2, the letter “T” shall be added to the designation, e.g. G ½ AT.