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Metric series wires for measuring screw threads

Piges métriques pour mesurage des filetages

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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. www.iso.org/directives

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 1, *Screw threads*.

Metric series wires for measuring screw threads

1 Scope

This International Standard specifies the material, metric series nominal diameters, diameter tolerances, and designation for screw thread measuring wires.

This International Standard is applicable to the measurement of the pitch diameters of ISO general purpose metric screw threads (M), Unified screw threads (UN), Whitworth pipe threads (G, R), and ISO metric trapezoidal screw threads (Tr) with standard pitches. These wires are intended for use on screw threads with a small lead angle, less than 5°, and are mainly used to calibrate the pitch diameters of thread plug gauges.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1, *Geometrical Product Specifications (GPS) — Standard reference temperature for geometrical product specification and verification*

ISO 5408, *Screw threads — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 5408 and the following apply.

3.1
best-size wire
wire that would touch an imaginary thread of zero lead angle at the pitch cylinder

Note 1 to entry: For symmetric threads, the diameter of a best-size wire is equal to $P/(2 \cos \alpha/2)$, where P is the pitch and $\alpha/2$ is the flank angle.

4 Reference temperature

In accordance with ISO 1, the dimension of the wire shall be related to the standard reference temperature of 20 °C.

5 Material, hardness, and surface finish

The wires shall be made from alloy tool steel that has been stabilized to ensure dimensional stability. The wires shall be free from cracks and other detrimental defects.

The hardness shall be (760 ± 50) HV5 over the measuring surface.

The roughness shall not exceed 0,4 µm *Rz* over the measuring surface.

6 Nominal diameters of best-size wires

6.1 Wires for ISO general purpose metric screw threads (M)

The nominal diameters of best-size wires and the allocation of pitches are given in Table 1.

Table 1 — Nominal diameters of best-size wires and allocated pitches for M threads

Dimensions in millimetres

Nominal diameter of wires	Pitch *P*	Nominal diameter of wires	Pitch *P*
0,115	0,2	0,866	1,5
0,144	0,25	1,010	1,75
0,173	0,3	1,155	2
0,202	0,35	1,443	2,5
0,231	0,4	1,732	3
0,260	0,45	2,021	3,5
0,289	0,5	2,309	4
0,346	0,6	2,598	4,5
0,404	0,7	2,887	5
0,433	0,75	3,175	5,5
0,462	0,8	3,464	6
0,577	1	4,619	8
0,722	1,25	–	–

6.2 Wires for Unified screw threads (UN)

The nominal diameters of best-size wires and the allocation of number of threads per 25,4 mm are given in Table 2.

6.3 Wires for Whitworth pipe threads (G, R)

The nominal diameters of best-size wires and the allocation of number of threads per 25,4 mm are given in Table 3.

6.4 Wires for ISO metric trapezoidal screw threads (Tr)

The nominal diameters of best-size wires and the allocation of pitches are given in Table 4.