

ICS 21.040.10



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 192-2025

**General purpose metric screw threads - Profiles
(English Translation)**

Issued on: May 30, 2025

Implemented on: December 1, 2025

Issued by: State Administration for Market Regulation

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Terms and definitions...	5
4 Designations...	5
5 Basic profile...	6
6 Design profile...	8

Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020

"Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents".

GB/T 192 "General purpose metric screw threads - Profiles" together with GB/T 193 "General purpose metric screw threads - General plan," GB/T 196 "General purpose metric screw threads - Basic dimensions," GB/T 197 "General purpose metric screw threads - Tolerances," GB/T 2516 "General purpose metric screw threads - Limit deviations," GB/T 9144 "General purpose metric screw threads - Preferable plan," GB/T 9145 "General purpose metric screw threads - Limits of sizes for the screw threads of medium quality and preferable plan," and GB/T 15756 "General purpose metric screw threads - Limits of sizes" constitute the national standard system for "general purpose metric screw threads."

This document replaces GB/T 192-2003 "General purpose metric screw threads - Basic profile." Compared to GB/T 192-2003, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) ADD the design profile (see Clauses 1 and 6);
- b) ADD the clause of symbols (see Clause 4).

This document has modified and adopted ISO 68-1.2023 "ISO general purpose screw

threads - Basic and design profiles - Part 1.Metric screw threads."

The technical differences between this document and ISO 68-1.2023 and their reasons are as follows.

- ISO 5408 has been replaced with the normative reference GB/T 14791 (see Clause 3), to adapt to the technical conditions of China and improve operability.

This document has made the following editorial changes.

- To align with existing standards, the standard name has been changed to "General purpose metric screw threads - Profiles."

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by and shall be under the jurisdiction of National Technical Committee on Screw Thread of Standardization Administration of China (SAC/TC 108).

General purpose metric screw threads - Profiles

1 Scope

This document specifies the basic and design profiles of general purpose metric screw threads (general purpose metric screw threads, M).

This document applies to metric fastening screw threads.

2 Normative references

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

GB/T 14791 Screw threads - Vocabulary (GB/T 14791-2013, ISO 5408.2009, IDT)

3 Terms and definitions

For the purpose of this document, the terms and definitions defined in GB/T 14791 apply.

4 Designations

For the purpose of this document, the following designations apply

D Major diameter of internal thread (nominal diameter)

d Major diameter of external thread (nominal diameter)

D2 Pitch diameter of internal thread

d2 Pitch diameter of external thread

D1 Minor diameter of internal thread

d1 Minor diameter of external thread on basic profile

d3 Minor diameter of external thread on design profile

P Pitch

H Fundamental triangle height

H1 Thread height of internal thread, thread height of external thread on basic profile

h3 Thread height of external thread on design profile

R Arc radius of fully rounded root of external thread on design profile

R1 Arc radius on partially rounded root corners of external thread on design profile

5 Basic profile

The basic profile is shown as a thick solid line in Figure 1. The basic profile of internal and external threads is the same.

The dimensions of the basic profile are listed in Table 1. The dimensions of the basic profile are calculated using the following formula, with the results rounded to the nearest sixth decimal place.

6 Design profile

The design profiles of internal and external threads are different, as shown as the thick solid lines in Figures 2 and 3, respectively.

The dimensions of the design profiles are listed in Table 2. The dimensions of the design

profiles are calculated using the following formulas. The calculated value for the thread height of external thread h_3 is rounded to the nearest sixth decimal place, and the calculated value for the arc radius of fully rounded root of external thread R is rounded to the nearest third decimal place. The minimum arc radius on partially rounded root corners of external thread $R_1 \min$ is determined according to the following provisions for partially rounded roots.

The root contour of internal threads is straight and flat. The root can be fully rounded or partially rounded and located beyond the $P/8$ flat bottom width. This document does not specify a limit for the root arc radius. The thread height of internal thread H_1 value is listed in Table 1.

The root contour of external threads is fully rounded or partially rounded with a continuous and smooth curve (without reverse bends), located below the $P/4$ flat bottom width. The root is located in the position of $H/6$ truncation height. The root form can be one of the following two types.

- a fully rounded root, with a large circular arc of radius R , tangential to the straight flanks, see Figure 3 a);
- a partially rounded root, with two small circular arcs of radii R_1 , tangential to the straight flanks and the flat on the bottom, see Figure 3 b). The R_1 radius value shall be specified in the threaded product document. Unless otherwise specified, the R_1 radius value shall be no less than $0.125 P$.

NOTE: A rounded root contour reduces the wear rate of threading tool crest and improves the fatigue resistance of external threads.

The crest contour of both internal and external threads is straight and flat. Depending on the thread processing method, the crest contour of both internal and external threads may be rounded.

.....