

General purpose ISO metric screw threads  
Part 1: Nominal sizes for 1 mm to 68 mm diameter coarse  
pitch threads

**DIN**  
**13-1**

ICS 21.040.10

Supersedes  
December 1986 edition.

Metrisches ISO-Gewinde allgemeiner Anwendung – Teil 1: Nennmaße  
für Regelgewinde – Gewinde-Nenndurchmesser von 1 mm bis 68 mm

*In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.*

### Foreword

This standard has been prepared by Technical Committee *Gewinde* of the *Normenausschuß Technische Grundlagen* (Fundamentals in Technology Standards Committee).

The adoption of a number of ISO Standards (e.g. ISO 724, ISO 965 series) as national standards led the responsible committee to revise the DIN 13 series of standards. The nominal sizes are now based both on the basic dimensions specified in DIN ISO 724 and on the nominal profiles specified in DIN 13-19. The nominal sizes of the external thread minor diameters specified here have been calculated taking the root radius as being equal to  $H/6$ .

The thread designation is to be found in DIN ISO 965-1. See the table in the Explanatory notes for an overview of DIN and DIN ISO Standards for screw threads.

### Amendments

This standard differs from the December 1986 edition in that the nominal sizes are now to be calculated on the basis of DIN 13-19 and size 7 mm threads have been assigned to series 2 (cf. table 1).

### Previous editions

DIN 13-34: 1960-11, 1962-10, 1964-06; DIN 13-44: 1966-03; DIN 13-1: 1949x-02, 1969-11, 1973-03, 1986-12.

All dimensions are in mm.

## 1 Scope

This standard applies to general purpose ISO metric screw threads. It specifies the nominal sizes for 1 mm to 68 mm diameter coarse pitch threads having the basic profile specified in DIN ISO 68-1 and the nominal profile specified in DIN 13-19.

## 2 Normative references

This standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the titles of the publications are listed below. For dated references, subsequent amendments to or revisions of any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

DIN 13-19 General purpose ISO metric screw threads – Nominal profiles

DIN 13-20 General purpose ISO metric screw threads – Limits of size for 1 mm to 68 mm diameter coarse pitch threads with preferred tolerance classes

Continued on pages 2 to 4.

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original should be consulted as the authoritative text.

DIN 2244 Screw threads – Terminology

DIN ISO 68-1 General purpose ISO screw threads – Basic profile – Part 1: Metric screw threads (ISO 68-1 : 1998)

DIN ISO 724 General purpose ISO metric screw threads – Basic dimensions (ISO 724 : 1993)

DIN ISO 965-1 General purpose ISO metric screw threads – Tolerances – Part 1: Principles and basic data (ISO 965-1 : 1998)

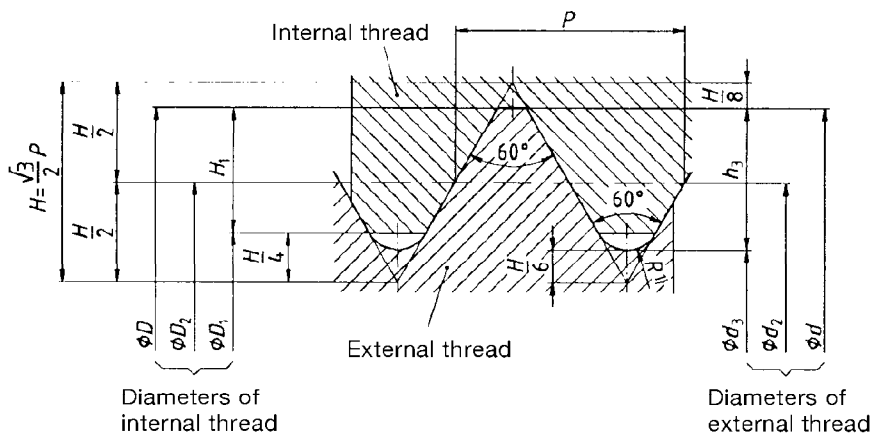
### 3 Concepts

See DIN 2244.

### 4 Dimensions and designation

Nominal sizes shall be as shown in figure 1 and given in table 1. Choose series 1 diameters, series 2 diameters, or series 3 diameters (in order of preference).

Basic dimensions shall be as specified in DIN ISO 724, tolerances as in DIN ISO 965-1 and limits of size as in DIN 13-20.



1)  $R = \frac{H}{6}$ ; the root profile may have a non-reversing curvature (cf. DIN ISO 965-1).

**Figure 1: Nominal thread profile**

ISO metric screw threads shall be designated in accordance with DIN ISO 965-1.

Table 1: Nominal sizes

Nominal diameter, $d (= D)$			Pitch, $P$	Pitch diameter, $d_2 (= D_2)$	Minor diameters,		Thread height,		Root radius, $R = \frac{H}{6}$
Series 1	Series 2	Series 3			$d_3$	$D_1$	$h_3$	$H_1$	
1	1,1		0,25	0,838	0,693	0,729	0,153	0,135	0,036
1,2			0,25	0,938	0,793	0,829	0,153	0,135	0,036
			0,25	1,038	0,893	0,929	0,153	0,135	0,036
1,6	1,4		0,3	1,205	1,032	1,075	0,184	0,162	0,043
	1,8		0,35	1,373	1,171	1,221	0,215	0,189	0,051
			0,35	1,573	1,371	1,421	0,215	0,189	0,051
2	2,2		0,4	1,740	1,509	1,567	0,245	0,217	0,058
2,5			0,45	1,908	1,648	1,713	0,276	0,244	0,065
			0,45	2,208	1,948	2,013	0,276	0,244	0,065
3	3,5		0,5	2,675	2,387	2,459	0,307	0,271	0,072
4			0,6	3,110	2,764	2,850	0,368	0,325	0,087
			0,7	3,545	3,141	3,242	0,429	0,379	0,101
5	4,5		0,75	4,013	3,580	3,688	0,460	0,406	0,108
6			0,8	4,480	4,019	4,134	0,491	0,433	0,115
			1	5,350	4,773	4,917	0,613	0,541	0,144
8	7	9	1	6,350	5,773	5,917	0,613	0,541	0,144
			1,25	7,188	6,466	6,647	0,767	0,677	0,180
			1,25	8,188	7,466	7,647	0,767	0,677	0,180
10		11	1,5	9,026	8,160	6,376	0,920	0,812	0,217
12			1,5	10,026	9,160	9,376	0,920	0,812	0,217
			1,75	10,863	9,853	10,106	1,074	0,947	0,253
16	14		2	12,701	11,546	11,835	1,227	1,083	0,289
	18		2	14,701	13,546	13,835	1,227	1,083	0,289
			2,5	16,376	14,933	15,294	1,534	1,353	0,361
20	22		2,5	18,376	16,933	17,294	1,534	1,353	0,361
24			2,5	20,376	18,933	19,294	1,534	1,353	0,361
			3	22,051	20,319	20,752	1,840	1,624	0,433
30	27		3	25,051	23,319	23,752	1,840	1,624	0,433
	33		3,5	27,727	25,706	26,211	2,147	1,894	0,505
			3,5	30,727	28,706	29,211	2,147	1,894	0,505
36	39		4	33,402	31,093	31,670	2,454	2,165	0,577
42			4	36,402	34,093	34,670	2,454	2,165	0,577
			4,5	39,077	36,479	37,129	2,760	2,436	0,650
48	45		4,5	42,077	39,479	40,129	2,760	2,436	0,650
	52		5	44,752	41,866	42,587	3,067	2,706	0,722
			5	48,752	45,866	46,587	3,067	2,706	0,722
56	60		5,5	52,428	49,252	50,046	3,374	2,977	0,794
64			5,5	56,428	53,252	54,046	3,374	2,977	0,794
			6	60,103	56,639	57,505	3,681	3,248	0,866
	68		6	64,103	60,639	61,505	3,681	3,248	0,866

### Explanatory notes

Specifications in International Standards on ISO metric screw threads are no longer incorporated into the standards of the DIN 13 series. Instead, the ISO Standards themselves are adopted as national standards (i.e. DIN ISO Standards), while specifications of solely national relevance will continue to be published in the DIN 13 series.

The table below gives an overview of the standards of the DIN 13 series which continue to be valid and the DIN ISO Standards which supersede standards in this series (now withdrawn).

**Overview of DIN and DIN ISO Standards for screw threads**

Standard	Scope	Remarks
DIN 13-1	Nominal sizes for coarse pitch threads	Covers nominal diameters from 1 mm to 68 mm.
DIN 13-2 to DIN 13-11	Nominal sizes for 0,2 mm to 8 mm fine pitch threads	Covers nominal diameters from 1 mm to 1 000 mm.
DIN 13-19	Nominal profiles	Basic profile now specified in DIN ISO 68-1.
DIN 13-20	Limits of size for 0,2 mm to 8 mm coarse pitch threads	Covers nominal diameters from 1 mm to 68 mm.
DIN 13-21 to DIN 13-26	Limits of size for fine pitch threads	Covers nominal diameters from 1 mm to 1 000 mm.
DIN 13-28	Core cross sections, stress areas and pitch angle	Covers 1 mm to 250 mm diameter coarse and fine pitch threads.
DIN 13-50	Combination of tolerance classes for formed threads	Covers M3 to M16 coarse threads and M8 x 1 to M30 x 2 fine threads, as in DIN ISO 965-2.
DIN 13-51	Tolerances, limit deviations and limits of size for external threads for transition fits	Covers 1 mm to 150 mm diameter coarse and fine pitch threads.
DIN 13-52	Tolerance system for multi-start ISO metric screw threads	Covers coarse and fine pitch threads as in the DIN 13 standards series.
DIN ISO 68-1	Basic profile for ISO metric screw threads	Previously specified in DIN 13-19.
DIN ISO 261	Diameters and pitch of coarse and fine threads	Covers nominal diameters from 1 mm to 300 mm.
DIN ISO 262	Selected sizes for screws, bolts and nuts	Covers nominal diameters from 1 mm to 64 mm.
DIN ISO 724	Basic dimensions	Covers nominal diameters from 1 mm to 300 mm.
DIN ISO 965-1	Principles and basic data for ISO metric screw threads	Covers nominal diameters from 1 mm to 355 mm.
DIN ISO 965-2	Limits of sizes for tolerance quality 'medium'	Covers M1 to M64 coarse threads and M8 x 1 to M64 x 4 fine threads.
DIN ISO 965-3	Deviations for constructional screw threads	Covers nominal diameters from 1 mm to 355 mm.
DIN ISO 1502	Gauging of screw threads	