

General purpose ISO metric screw threads
Part 20: Limits of size for 1 mm to 68 mm diameter coarse pitch
threads with recommended tolerance classes

DIN
13-20

ICS 21.040.10

Supersedes
November 1999 edition.

Metrisches ISO-Gewinde allgemeiner Anwendung – Teil 20:
Grenzmaße für Regelgewinde mit bevorzugten Toleranzklassen –
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).

Amendments

This standard differs from the October 1983 edition as follows:

- a) For internal threads of 5 mm to 68 mm nominal diameter, tolerance class 7G, and for external threads of 5 mm to 7 mm nominal diameter, tolerance class 8e has been included.
- b) For external threads of 56 mm and 60 mm nominal diameter, the values of the minimum pitch diameter for tolerance class 6e have been corrected (from 52,151 mm to 52,051 mm and from 56,151 mm to 56,051 mm).

As compared with the November 1999 edition, some printing errors have been corrected.

Previous editions

DIN 13-43: 1965-08; DIN 13-44: 1966-03; DIN 13-20: 1972-11, 1983-10, 1999-11.

All dimensions are in millimetres.

1 Scope

This standard applies to general purpose ISO metric screw threads having the basic profile specified in DIN ISO 68-1. It specifies limits of size for 1 mm to 68 mm diameter coarse pitch threads with recommended tolerance classes.

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 13-1 | General purpose ISO metric screw threads – Nominal sizes for 1 mm to 68 mm diameter coarse pitch threads |
| DIN 13-19 | General purpose ISO metric screw threads – Nominal profiles |
| DIN ISO 68-1 | General purpose ISO screw threads – Basic profile – Part 1: Metric screw threads (ISO 68-1 : 1998) |
| DIN ISO 965-1 | General purpose ISO metric screw threads – Tolerances – Part 1: Principles and basic data (ISO 965-1 : 1998) |
| DIN ISO 965-2 | General purpose ISO metric screw threads – Tolerances – Part 2: Limits of size for general purpose external and internal screw threads – Medium quality (ISO 965-2 : 1998) |
| DIN ISO 965-3 | General purpose ISO metric screw threads – Tolerances – Part 3: Deviations for constructional screw threads (ISO 965-3 : 1998) |

Continued on pages 2 to 8.

Translation by DIN-Sprachendienst.

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

3 Limits of size

The limits of size for the tolerance classes given in table 1 have been calculated from the nominal sizes specified in DIN 13-1 and from the fundamental deviations and tolerances specified in DIN ISO 965-1. Limits of size for other tolerance classes may be calculated from the deviations specified in DIN ISO 965-3.

See DIN ISO 965-2 for limits of size for screws, bolts and nuts.

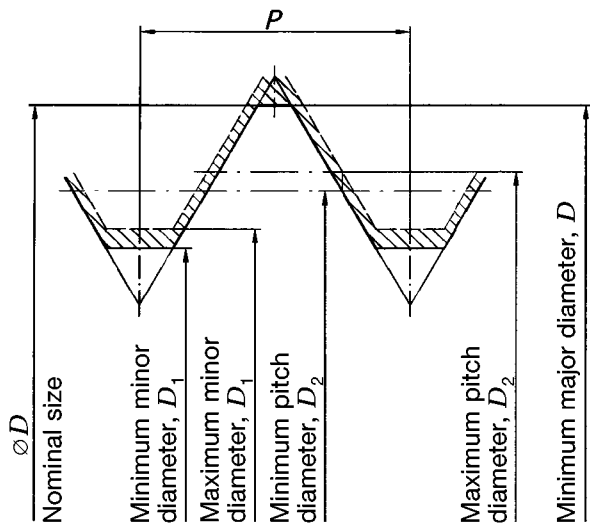


Figure 1: Internal thread with tolerance position H

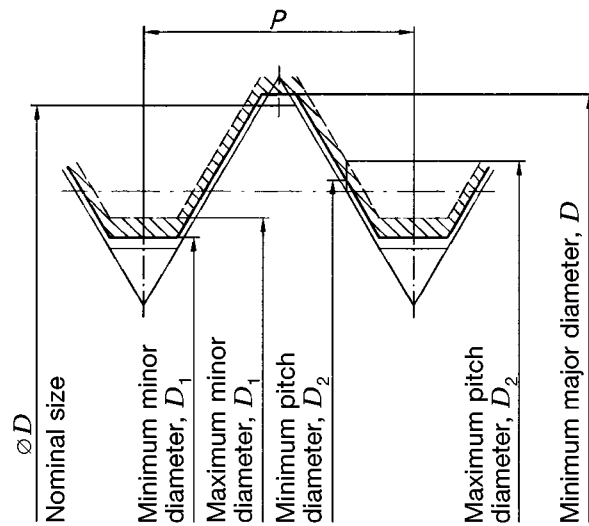


Figure 2: Internal thread with tolerance position G

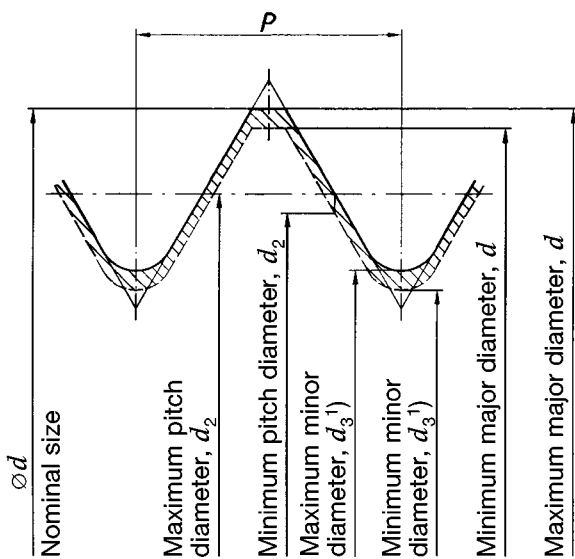


Figure 3: External thread with tolerance position h

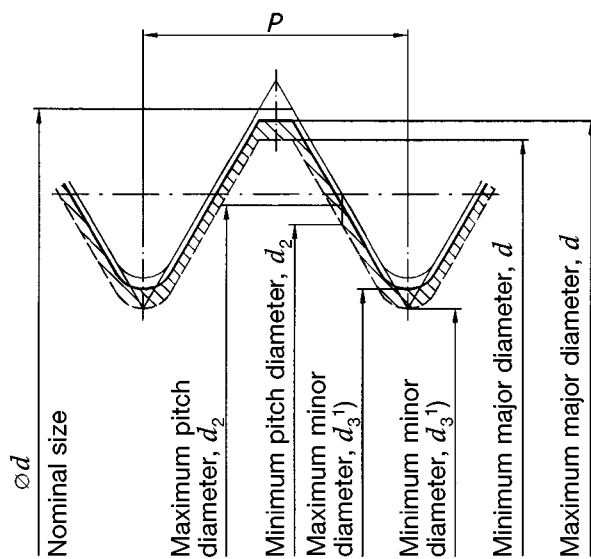


Figure 4: External thread with tolerance position e, f and g

¹⁾ Maximum calculated taking R as $0,144\ 338\ P = H/6$ (cf. DIN 13-19), and the minimum, taking R as $0,125\ P \approx H/7$ (cf. DIN ISO 965-1).

Table 1: Limits of size

Nominal diameter, d (= D)	Pitch, P	Internal threads						External threads							
		Tolerance class	Minimum major diameter, D	Pitch diameter, D_2		Minor diameter, D_1		Tolerance class	Major diameter, d		Pitch diameter, d_2		Minor diameter, d_3		
				Min.	Max.	Min.	Max.		Max.	Min.	Max.	Min.	Max.	Min.	
1	0,25	4H	1	0,838	0,883	0,729	0,774	4h	1	0,958	0,838	0,804	0,693	0,649	
		5H	1	0,838	0,894	0,729	0,785	6h	1	0,933	0,838	0,785	0,693	0,630	
		5G	1,018	5e	0,856	0,912	0,747	0,803	5e	0,955	0,901	0,793	0,751	0,648	0,596
				5f	0,967	0,913	0,805	0,763	0,660	0,608					
1,1	0,25	4H	1,1	0,938	0,983	0,829	0,874	4h	1,1	1,058	0,938	0,904	0,793	0,749	
		5H	1,1	0,938	0,994	0,829	0,885	6h	1,1	1,033	0,938	0,885	0,793	0,730	
		5G	1,118	5e	0,956	1,012	0,847	0,903	5e	1,055	1,001	0,893	0,851	0,748	0,696
				5f	1,067	1,013	0,905	0,863	0,760	0,708					
1,2	0,25	4H	1,2	1,038	1,083	0,929	0,974	4h	1,2	1,158	1,038	1,004	0,893	0,849	
		5H	1,2	1,038	1,094	0,929	0,985	6h	1,2	1,133	1,038	0,985	0,893	0,830	
		5G	1,218	5e	1,056	1,112	0,947	1,003	5e	1,155	1,101	0,993	0,951	0,848	0,796
				5f	1,167	1,113	1,005	0,963	0,860	0,808					
1,4	0,3	4H	1,4	1,205	1,253	1,075	1,128	4h	1,4	1,352	1,205	1,169	1,032	0,984	
		5H	1,4	1,205	1,265	1,075	1,142	6h	1,4	1,325	1,205	1,149	1,032	0,964	
		5G	1,418	5e	1,223	1,283	1,093	1,160	5e	1,354	1,294	1,159	1,114	0,986	0,929
				5f	1,367	1,307	1,172	1,127	0,999	0,942					
1,6	0,35	4H	1,6	1,373	1,426	1,221	1,284	4h	1,6	1,547	1,373	1,333	1,170	1,117	
		5H	1,6	1,373	1,440	1,221	1,301	6g	1,581	1,496	1,354	1,291	1,151	1,075	
		6H	1,6	1,373	1,458	1,221	1,321	6e	1,554	1,469	1,327	1,264	1,124	1,048	
		6G	1,619	1,392	1,477	1,240	1,340	6f	1,566	1,481	1,339	1,276	1,136	1,060	
1,8	0,35	4H	1,8	1,573	1,626	1,421	1,484	4h	1,8	1,747	1,573	1,533	1,370	1,317	
		5H	1,8	1,573	1,640	1,421	1,501	6g	1,781	1,696	1,554	1,491	1,351	1,275	
		6H	1,8	1,573	1,658	1,421	1,521	6e	1,754	1,669	1,527	1,464	1,324	1,248	
		6G	1,819	1,592	1,677	1,440	1,540	6f	1,766	1,681	1,539	1,476	1,336	1,260	
2	0,4	5H	2	1,740	1,811	1,567	1,657	4h	2	1,940	1,740	1,698	1,509	1,451	
		6H	2	1,740	1,830	1,567	1,679	6g	1,981	1,886	1,721	1,654	1,490	1,407	
		6G	2,019	6e	1,759	1,849	1,586	1,698	6e	1,952	1,857	1,692	1,625	1,461	1,378
				6f	1,966	1,871	1,706	1,639	1,475	1,392					
2,2	0,45	5H	2,2	1,908	1,983	1,713	1,813	4h	2,2	2,137	1,908	1,863	1,648	1,586	
		6H	2,2	1,908	2,003	1,713	1,838	6g	2,180	2,080	1,888	1,817	1,628	1,540	
		6G	2,220	6e	1,928	2,023	1,733	1,858	6e	2,152	2,052	1,860	1,789	1,600	1,512
				6f	2,165	2,065	1,873	1,802	1,613	1,525					
2,5	0,45	5H	2,5	2,208	2,283	2,013	2,113	4h	2,5	2,437	2,208	2,163	1,948	1,886	
		6H	2,5	2,208	2,303	2,013	2,138	6g	2,480	2,380	2,188	2,117	1,928	1,840	
		6G	2,520	6e	2,228	2,323	2,033	2,158	6e	2,452	2,352	2,160	2,089	1,900	1,812
				6f	2,465	2,365	2,173	2,102	1,913	1,825					
3	0,5	5H	3	2,675	2,755	2,459	2,571	4h	3	2,933	2,675	2,627	2,387	2,320	
		6H	3	2,675	2,775	2,459	2,599	6g	2,980	2,874	2,655	2,580	2,367	2,273	
		7H	3	2,675	2,800	2,459	2,639	6e	2,950	2,844	2,625	2,550	2,337	2,243	
		6G	3,020	2,695	2,795	2,479	2,619	6f	2,964	2,858	2,639	2,564	2,351	2,257	

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