UDC 621.882.082 January 1988

Screw threads
General plan

DIN 202

Gewinde; Übersicht

Supersedes December 1981 edition.

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.

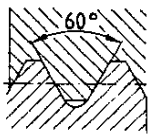
This standard provides a quick means of reference to screw threads either for general purposes or for use in particular sectors of engineering.

Table 1 summarizes screw threads conforming to DIN Standards, table 2 those conforming to ISO Standards, whilst commonly used screw threads complying with standards of other countries are listed in table 3.

The thread designation is generally composed of the symbol denoting the type of screw thread and the nominal thread diameter or thread size, with data on pitch or number of threads, tolerance, number of starts, amount of taper and whether the thread is a left-hand thread being added where required. In the case of a number of screw threads conforming to DIN Standard, the thread designation is preceded by the DIN number.

It should be noted that when using tables 1 to 3, only the latest edition of each standard referred to shall apply.

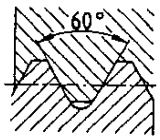
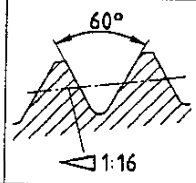
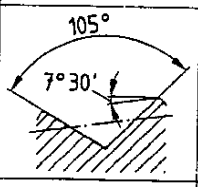
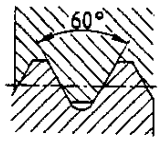
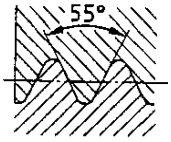
Table 1. **DIN screw threads**

Type of thread	Profile (diagram)	Symbol	Designation (example)	Range of nominal sizes	As specified in	Application	
ISO metric screw thread		M	M 0,8	0,3 to 0,9 mm	DIN 14 Parts 1 to 4	Watches and precision engineering	
			M 30	1 to 68 mm	DIN 13 Part 1	General purpose screw threads (coarse pitch threads)	
			M 20 × 1 M 30 × 2 – LH[1]	1 to 1000 mm	DIN 13 Parts 2 to 11	To be used where pitch of coarse thread is too large	
			DIN 6630 – M 64 × 4	64 and 76 mm	DIN 6630	External barrel threads	
			LN 9163 – M 30 × 2 – 4H 5H	1,4 to 355 mm	LN 9163	Aerospace construction	
ISO metric screw thread with transition tolerance			M 10 Sn 4 M 10 Sk 6	3 to 150 mm	DIN 13 Part 51 (at present at the stage of draft)	For stud ends	Non-sealing
			M 10 Sn 4 sealing	3 to 150 mm			Sealing

[1]) To indicate left-hand thread, the symbol LH (left-hand) should be appended to the designation.
For parts to be provided with either a right-hand or a left-hand thread, the designation of the right-hand thread should be followed by symbol RH (right-hand).

Continued on pages 2 to 10

Table 1 (continued).

Type of thread	Profile (diagram)	Symbol	Designation (example)	Range of nominal sizes	As specified in	Application
Metric screw thread with large clearance		M	DIN 2510 – M 36	12 to 180 mm	DIN 2510 Part 2	Bolted connections involving bolts with waisted shank
ISO metric screw thread; helical coil thread for inserts		EG M	DIN 8140 – EG M 20	2 to 52 mm	DIN 8140 Part 2 (at present at the stage of draft)	Helical coil thread (coarse pitch and fine pitch thread) for wire thread inserts
Metric tapered external screw thread		M	DIN 158 – M 30 × 2 keg	6 to 60 mm	DIN 158	Screw plugs and lubricating nipples
			DIN 158 – M 30 × 2 keg (short)			
Tapping taper external screw thread		S	S 8 × 1	6 to 10 mm	DIN 71412 (at present at the stage of draft)	Taper lubricating nipples; screw threads similar to DIN 158 threads, with flank angle of 105°
MJ thread		MJ	MJ 6 × 1 – 4h6h	1,6 to 39 mm	DIN ISO 5855 Parts 1 and 2	Aerospace construction
			MJ 6 × 1 – 4H5H			
Parallel pipe thread where pressure-tight joints are not made on the threads		G	G 1 ½ A G 1 ½ B	1/16 to 6	DIN ISO 228 Part 1	External screw threads for pipes and pipe joint assemblies
			G 1 ½			Internal screw threads for pipes and pipe joint assemblies
			DIN 6630 – G ¾	¾, 1, 2	DIN 6630	External barrel threads
		–	5 ½	5 ½	DIN 6602	External screw threads for tank wagons
		R[2)]	R ¾	⅛ to 6	DIN 259 Parts 1 to 3	Pipes and pipe joint assemblies; not intended for new designs

[2)] As this symbol may be confused with identical thread symbols given in ISO 7 Part 1, DIN 259 Parts 1 to 3 have been superseded by DIN ISO 228 Part 1 in which different symbols have been specified. For details, see DIN ISO 228 Part 1.

Table 1 (continued).

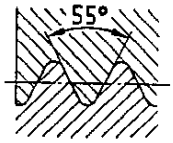
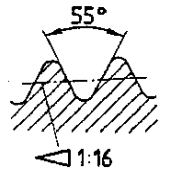
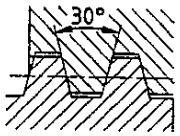
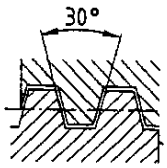
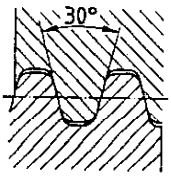
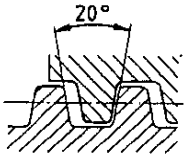
Type of thread	Profile (diagram)	Symbol	Designation (example)	Range of nominal sizes	As specified in	Application
Parallel pipe thread where pressure-tight joints are made on the threads		Rp	DIN 2999 – Rp ½	1/16 to 6	DIN 2999 Part 1	Internal screw threads for threaded pipes and fittings
			DIN 3858 – Rp ⅛	⅛ to 1 ½	DIN 3858	Internal screw threads for compression couplings
Tapered pipe thread where pressure-tight joints are made on the threads		R	DIN 2999 – R ½	1/16 to 6	DIN 2999 Part 1	External screw threads for threaded pipes and fittings
			DIN 3858 – R ⅛–1	⅛ to 1 ½	DIN 3858	External screw threads for compression couplings
ISO metric (single-start or multi-start thread) trapezoidal screw thread		Tr	Tr 40 × 7	8 to 300 mm	DIN 103 Parts 1 to 8	General purpose screw threads
			Tr 40 × 14 P7			
Flat metric (single-start or multi-start) trapezoidal screw thread			DIN 380 – Tr 48 × 8		DIN 380 Parts 1 and 2	
			DIN 380 – Tr 40 × 14 P7			
Trapezoidal (single-start or two-start) screw thread with clearance			DIN 263 – Tr 48 × 12	48 mm	DIN 263 Parts 1 and 2	Rail vehicles
			DIN 263 – Tr 40 × 16 P8	40 mm		
			DIN 6341 – Tr 32 × 1,5	10 to 56 mm	DIN 6341 Part 2	Drawback collets
Rounded trapezoidal screw thread			DIN 30 295 – Tr 40 × 5	26 to 80 mm	DIN 30 295 Parts 1 and 2	Rail vehicles
Trapezoidal screw thread		KT	DIN 6063 – KT 22	10 to 50 mm	DIN 6063 Part 2	Plastic containers

Table 1 (continued).

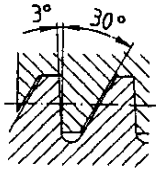
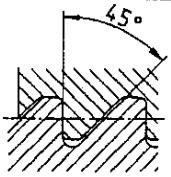
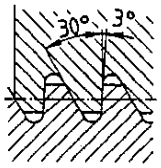
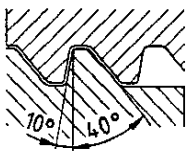
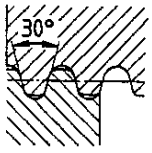
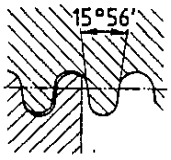
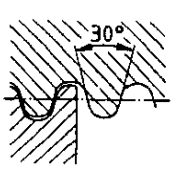
Type of thread	Profile (diagram)	Symbol	Designation (example)	Range of nominal sizes	As specified in	Application
Metric (single-start or multi-start) buttress thread		S	S 48 × 8	10 to 640 mm	DIN 513 Parts 1 to 3	General purpose screw threads
			S 40 × 14 P7			
45° buttress thread			DIN 2781 – S 630 × 20	100 to 1250 mm	DIN 2781	Hydraulic presses
Buttress thread			DIN 20 401 – S 25 × 1,5	6 to 40 mm	DIN 20 401 Parts 1 and 2	Mining
		KS	DIN 6063 – KS 22	10 to 50 mm	DIN 6063 Part 1	Plastic containers
Parallel (single-start or multi-start) knuckle thread			Rd 40 × 1/6 Rd 40 × 1/3 P 1/6	8 to 200 mm	DIN 405 Parts 1 and 2	General purpose screw threads
Parallel knuckle thread			Rd 40 × 5	10 to 300 mm	DIN 20 400	Mining; with increased bearing depth
			DIN 15 403 – Rd 80 × 10	50 to 320 mm	DIN 15 403	Lifting hooks
			DIN 7273 – Rd 70	20 to 100 mm	DIN 7273 Part 1	Steel sheet components and associated couplings
Parallel knuckle thread with clearance			DIN 262 – Rd 59 × 7	34 to 79 mm	DIN 262 Parts 1 and 2	Rail vehicles
			DIN 262 – Rd 59 × 7 left-hand			
			DIN 264 – Rd 50 × 7	50 mm	DIN 264 Parts 1 and 2	
			DIN 264 – Rd 50 × 7 left-hand			

Table 1 (continued).

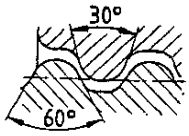
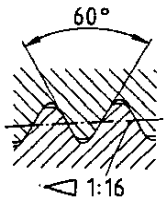
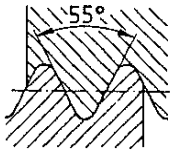
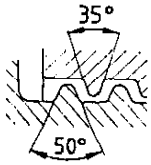
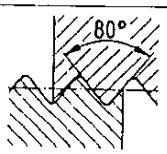
Type of thread	Profile (diagram)	Sym-bol	Designation (example)	Range of nominal sizes	As specified in	Application
Parallel knuckle thread		Rd	DIN 3182 – Rd 40 × 1/6	40, 80 and 110 mm	DIN 3182 Part 1	Respiratory equipment
		GL	DIN 168 – GL 25 × 3	8 to 45 mm	DIN 168 Part 1	Glass containers
Taper knuckle thread		Gf	DIN 4930 – Gf 127	127 mm	DIN 4930 Part 2	Pipes for freeze sinking
Edison thread		E	DIN 40 400 – E 27	14 mm, 16 mm, 18 mm, 27 mm, 33 mm	DIN 40 400	D-type fuses; E14 and E27 screw threads also for lamp caps and holders
			DIN 49 612 – E 5	5 mm	DIN 49 612	Lamp caps
			DIN 49 610 – E 10	10 mm	DIN 49 610	
			DIN 49 625 – E 40	40 mm	DIN 49 625	
		–	DIN 49 689 – 28 × 2	28 and 40 mm	DIN 49 689	External screw threads for lamp holders and internal screw threads for lamp shade carrier rings
Parallel Whitworth thread		W	DIN 49 301 – W 3/16	3/16	DIN 49 301	Electrical engineering: screw-in gauge rings D II and D III
Glass screw thread		Glasg	DIN 40 450 – Glasg 74,5	74,5 mm 84,5 mm 99 mm 123,5 mm 158 mm 188 mm	DIN 40 450	Electrical engineering: cover glasses and caps
Steel conduit screw thread		Pg	DIN 40 430 – Pg 21	7 to 48 mm	DIN 40 430	Electrical engineering

Table 1 (concluded).

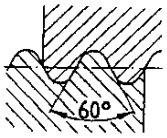
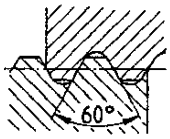
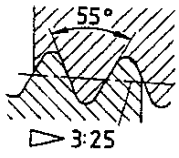
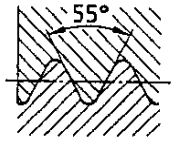
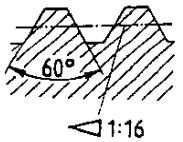
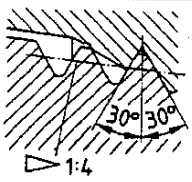
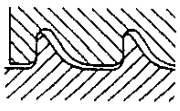
Type of thread	Profile (diagram)	Sym-bol	Designation (example)	Range of nominal sizes	As specified in	Application
Tapping screw thread		ST	DIN 7970 – ST 3,5	1,5 to 9,5 mm	DIN 7970	Tapping screws
Wood screw thread		–	DIN 7998 – 4	1,6 to 20 mm	DIN 7998	Wood screws
Cycle thread		FG	FG 9,5	2 to 34,8 mm	DIN 79 012	Bicycles and motor-bicycles
Valve screw thread		Vg	DIN 7756 – Vg 12	5 to 12 mm	DIN 7756	Tyre valves
Taper Whitworth thread		W	DIN 477 – W 28,8 × 1/14 keg	19,8 mm 28,8 mm 31,3 mm	DIN 477 Part 1	Screwed sockets of gas cylinder valves
Parallel Whitworth thread			DIN 477 – W 21,80 × 1/14	21,8 mm 24,32 mm 25,4 mm		Connections of gas cylinder valves
			W 80 × 1/11	80 mm	DIN 4668	Protective caps for gas cylinder valves
RMS thread		RMS	DIN 58 888 – RMS	20,32 mm	DIN 58 888	Microscope objectives
Tapered drill pipe thread		Gg	DIN 4941 – Gg 51	44,5 to 88,9 mm	DIN 4941	Deep drilling; well sinking and mining
			DIN 20 314 – Gg 4 ½	3 ½ 4 ½ 5 ½	DIN 20 314	
Screw thread for bone screws and nuts		HA	DIN 58 810 – HA 4,5	1,5, 2, 2,7, 3,5 and 4,5 mm	DIN 58 810	Bone screws and nuts for surgical implants
		HB	DIN 58 810 – HB 6,5	4 and 6,5 mm		

Table 2. **ISO screw threads**

International Standard	Title	Corresponding DIN Standards
ISO 7/1 – 1982	Pipe threads where pressure-tight joints are made on the threads. Part 1: Designation, dimensions and tolerances	DIN 2999 Part 1
ISO 68 – 1973	ISO general purpose screw threads; basic profile	DIN 13 Part 19
ISO 228/1 – 1982	Pipe threads where pressure-tight joints are not made on the threads. Part 1: Designation, dimensions and tolerances	DIN ISO 228 Part 1
ISO 261 – 1973	ISO general purpose metric screw threads; general plan	DIN 13 Part 12, Supplement
ISO 262 – 1973	ISO general purpose metric screw threads; selected sizes for screws, bolts and nuts	DIN 13 Part 13
ISO 263 – 1973	ISO inch screw threads; general plan and selection for screws, bolts and nuts; diameter range 0,06 to 6 inch	–
ISO 724 – 1978	ISO metric screw threads; basic dimensions	–
ISO 725 – 1978	ISO inch screw threads; basic dimensions	–
ISO 965/1 – 1980	ISO general purpose metric screw threads; tolerances. Part 1: Principles and basic data	DIN 13 Parts 14 and 15
ISO 965/2 – 1980	ISO general purpose metric screw threads; tolerances. Part 2: Limits of sizes for general purpose bolt and nut threads; medium quality	DIN 13 Parts 20, 21 and 22
ISO 965/3 – 1980	ISO general purpose metric screw threads; tolerances. Part 3: Deviations for constructional threads	DIN 13 Part 27
ISO 1478 – 1983	Tapping screw threads	DIN 7970
ISO/R 1501 – 1970	ISO miniature screw threads	DIN 14 Parts 1 to 4
ISO 2901 – 1977	ISO metric trapezoidal screw threads; basic profile and maximum material profiles	DIN 103 Part 1
ISO 2902 – 1977	ISO metric trapezoidal screw threads; general plan	DIN 103 Part 2
ISO 2903 – 1977	ISO metric trapezoidal screw threads; tolerances	DIN 103 Part 3
ISO 2904 – 1977	ISO metric trapezoidal screw threads; basic dimensions	DIN 103 Part 4
ISO 3161 – 1977	UNJ-threads, with controlled root radius, for aerospace; inch series	–
ISO 4570/1 – 1977	Tyre valve threads. Part 1: Threads 5V1, 5V2, 6V1 and 8V1	–
ISO 4570/2 – 1979	Tyre valve threads. Part 2: Threads 9V1, 10V2, 12V1, 13V1	–
ISO 4570/3 – 1980	Tyre valve threads. Part 3: Threads 8V2, 10V1, 11V1, 13V2, 15V1, 16V1, 17V1, 17V2, 17V3, 19V1, 20V1	–
ISO 5835/1 – 1978	Implants for surgery; metal bone screws, dimensions. Part 1: Screws with asymmetrical thread, spherical undersurfaces	DIN 58810
ISO 5855/1 – 1981	Aerospace construction; MJ threads. Part 1: Basic profile	DIN ISO 5855 Part 1
ISO 5864 – 1978	ISO inch screw threads; allowances and tolerances	–
ISO 6698 – 1981	Cycles; screw threads used to assemble freewheels on bicycle hubs	DIN ISO 6698
ISO 8038 – 1985	Optics and optical instruments; microscopes, screw thread for objectives	–

Table 3. **Screw threads specified in standards of other countries**

Type of thread	Symbol	Designation (example)	As specified in	Published in
	UNM	0.80 UNM	ASA B 1.10 – 1958	USA
Unified screw thread	UN UNC UNF UNEF UNS	¼ – 20 UNC – 2A or 0.250 – 20 UNC – 2A	ANSI B 1.1 – 1982 B.S. 1580: Part 1 & 2: 1962 CSA B 1.1 – 1949	USA, United Kingdom, Canada
	UNR UNRC UNRF UNREF UNRS } 1)	7/16 – 20 UNRF – 2A or 0.4375 – 20 UNRF – 2A	ANSI B 1.1 – 1982	USA
	UNC UNF UNEF } 2)	6(0.138) – 32 UNC – 2A	B.S.1580: Part 3: 1965	United Kongdom
	UNJ UNJC UNJF UNJEF	0.250 – 28 UNJF – 3A	B.S.4084: 1978	
American screw thread (obsolete)	NC NF NEF NS 8 N; 12 N; 16 N	12-32 NEF	ANSI B 1.1 – 1960 replaced by ANSI B 1.1 – 1982	USA
Whitworth thread	BSW BSF	¼ in. – 20 B.S.W.	B.S.84: 1956	United Kingdom
B.A. thread	B.A.	11 B.A.	B.S.93: 1951	
Parallel pipe thread	NPSC NPSM NPSL NPSH	⅛ – 27 NPSC	ANSI/ASME B 1.20.1 – 1983	USA
	Dryseal NPSF Dryseal NPSI	⅛ – 27 NPSF	ANSI B 1.20.3 – 1976 (R 1982)	
	G 3)	G 1 ¼	B.S.2779: 1973	United Kingdom
	Rp 4)	Rp ½	B.S.21: 1973	
Tapered pipe thread	NPT NPTR	⅜ – 18 NPT	ANSI/ASME B 1.20.1 – 1983	USA
	Dryseal NPTF Dryseal PTF-SAE SHORT	⅛ – 27 NPTF – 1	ANSI B 1.20.3 – 1976 (R 1982)	
	R 5)	R ½	B.S.21: 1985	United Kingdom
	Rc	Rc ½		

For 1) to 5), see page 9.

Table 3 (concluded).

Type of thread	Symbol	Designation (example)	As specified in	Published in
Trapezoidal screw thread	Acme	1 ¾ – 4 ACME – 2G	ANSI B 1.5 – 1977	USA
			B.S.1104: 1957	United Kingdom
	Stub-Acme	0.500 – 20 STUB ACME	ANSI B 1.8 – 1977	USA
Buttress thread	Butt	2.5 – 8 BUTT – 2A	ANSI B 1.9 – 1973 (R 1985)	
	Buttress	2.0 B.S. Buttress thread 8 tpi medium class	B.S.1657: 1950	United Kingdom
Cycle thread	BSC	¼ – 26. BSC-Med.	B.S.811: 1950	
API thread (thread of the American Petroleum Institute for use in the petroleum industry)	CSG LCSG BCSG XCSG LP TBG UP TBG	4 ½ API TBG	API Std 5 B – 1987	USA
	NC ROTARY REG ROTARY REG LH ROTARY FH ROTARY IF ROTARY	API 4 IF THD	API Spec 7 – 1985	
		¾ API	API Spec 11 B – 1986	

[1] External screw thread with radiused root.
[2] For nominal thread diameters less than below ¼ inch.
[3] Substitutes symbol BSP.F.
[4] Substitutes symbol BSP.Pl.
[5] Substitutes symbol BSP.Tr.

Standards referred to

See tables 1 to 3.

Other relevant standards and documents

DIN 30281 Screw threads for rail vehicles; general plan

DIN 79011 Screw threads for bicycles and motor-bicycles; selection, use

Beuth Commentary *Internationale Gewindeübersicht; Kennbuchstaben, Profile und Bezeichnungen von Gewinden in Normen verschiedener Länder* (International guide to screw threads; symbols, profiles and designations of threads in standards of various countries), obtainable from *Beuth Verlag GmbH*, Berlin.

Previous editions

DIN 202: 02.23, 1924, 04.26, 07.38x, 08.74, 12.81.

Amendments

The following amendments have been made to the December 1981 edition.

a) Table 1 has been extended to include additional screw threads.

b) The dates of issue of the standards listed in tables 2 and 3 have been updated.

Explanatory notes

The Whitworth thread conforming to British Standard BS 84: 1956 given in table 3 is similar to the thread specified in the withdrawn Standard DIN 11, 1923x edition. Users still requiring this screw thread for replacement purposes, may obtain DIN 11 from *Beuth Verlag GmbH*, Berlin.

International Patent Classification

B 64
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E 03 C 1/02
F 16 B 7/18
F 16 B 25/00
F 16 B 33/02
F 16 B 37/12
F 16 L 15/00
F 16 N 21/02