UNC, UNF, UNEF, UNS

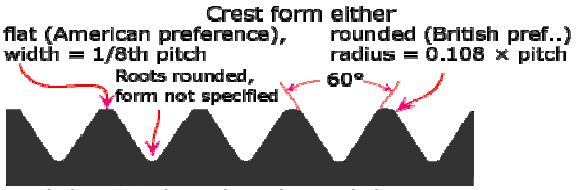
screw thread gauges to one inch in diameter

These series (and the UNR, UNJ and fixed-pitch series) are the inch-based thread series currently used in the United States, and have been since 1949.1 They superceded the American National Series (NC, NF, etc.) Pink shading indicates secondary sizes whose use is discouraged by standards organizations. See this table for diameters of twist drills.
The tap drill sizes are listed in the order in which the threads per inch(tpi) are listed in the previous column.

Gage and Fractional Sizes	Major diam. (inches)	Clearance Drill	UNC tpi	Tap Drill for UNC	UNF tpi	Tap Drill for UNF	UNEF tpi	UNS tpi	Tap drill for UNS	Nut Size
0	0.06	#52	—	—	80	3/64″	—	—	—	5/32″
1	0.073	#48	64	#52	72	#53	—	—	#54	5/32″
2	0.086	#43	56	#50	64	#50	—	—	—	3/16″
3	0.099	#37	48	#47	56	#45	—	—	—	3/16″
4	0.112	#32	40	#43	48	#42	—	32,36	#45,#44	¼″
5	0.125	#30	40	#39	44	#37	—	36	#40	¼″
6	0.138	#27	32	#36	40	#33	—	36	#34	5/16″
8	0.164	#18	32	#29	36	#29	—	30,40	#30,#28	11/32″
10	0.19	#9	24	#25	32	#21		28,36,40,48, 56,30	#23,#22	3/8″
12	0.216	#2	24		28		32	36,40,48,56	#13	7/16″
¼″	0.25	F	20	#7	28	#3	32	24,27,32,36, 40,48,56	4,3, 7/32″	7/16″
5/16″	0.3125	P	18	F	24	I	32	20,27,28,36, 40,48	17/64″, J, 9/32	9/16″
3/8″	0.375	W	16	5/16″	24	Q	32	18,27,36,40		5/8″
0.39	0.39	25/64	—	—	—	—	—	27		
7/16″	0.4375	29/64″	14	U	20	25/64″	28	18,24,27		
½″	0.5000	33/64″	13(see note 2)	27/64″	20	29/64″	28	12,14,18,24,27		¾″
9/16″	0.5625	9/16″	12	31/64″	18	33/64″	24	14,27		
5/8″	0.625	5/8″	11	17/32″	18	37/64″	24	14,27		
11/16″	0.68753	11/16					24	—		
¾″	0.75	¾	10	21/32″	16		20	14,18,24		1 1/8″
13/16″	0.8125	13/16″	—	—	—	—	20	—		
7/8″	0.875	7/8″	9	49/64″	14		20	10,18,24,27		1 5/16″
15/16″	0.9375	15/16″	—	—	—	—	20	—		
1″	1	1″	8	7/8″	14		20	10,14,18,24,27		1½″

History

The differences between American and British thread forms became a painful problem during the Second World War, especially in manufacturing and repairing airplane engines. In *1948* representatives of Britain, Canada and the United States agreed on a Unified Standard.



In the compromise the British accepted the 60° thread angle, and the Americans accepted rounded roots and optionally rounded crests. Five classes of fit were defined. The new fasteners continued to fit, for most practical purposes, ones manufactured under the old American National Standards. NC became UNC, NF became UNF, etc.
The UNS series is a catch-all category for threads which have the American Standard form, but whose pitches are not in the Unified Coarse (UNC) or Unified Fine (UNF) series.

Nomenclature

UNC: Unified National Coarse
UNF: Unified National Fine
UNEF: Unified National Extra Fine
UNS: Unified National Special

1. B1.1-1949
2. In the Unified National Series the ½ inch size has 13 threads per inch, but the American Standard was 12 threads per inch.

Standards

British Standard 1580 Unified (ISO, inch) screw threads: Parts 1 and 2 (1962); Part 3 (1965).

NC, NF, NEF

to one inch in diameter

These thread series are obsolete. For the current series, see Unified.

When the American Standards Assn. (now ANSI) was formed, one of its first projects was to pull together a set of thread standards for the United States that would be consistent and would provide for most needs. The thread form and most sizes were based on the old United States Standard. Sizes below ¼ inch were added from the *1907* American Society of Mechanical Engineers standard. A fine-thread Series (NF) was taken from the "Regular Screw-Thread Series" of the Society of Automotive Engineers, with sizes below ¼ inch added from the A.S.M.E. "Fine-thread Series." Later the SAE Extra-Fine was added as the American National Extra Fine Thread Series (NEF).

The sizes in the first column that are not followed by an inch mark are American Standard Screw gauges. Pink shading indicates sizes no longer in use or whose use is discouraged by standards organizations. See this table for diameters of twist drills.

The NS series is a catch-all category for threads which have the American Standard form, but whose pitches are not in the National Coarse or National Fine series.

The tap drill sizes are listed in the order in which the threads per inch (tpi) are listed in the previous column.

Gage and Fractional Sizes	Major diam. (inches)	Clearance Drill	NC tpi	Tap Drill for NC	NF tpi	Tap Drill for NF	NEF	NS	Tap drill for NS	Nut Size
0		#73	160	1/64″						
0		#63	120	#71						3/32″
0		#55	90	#65						3/32″
0	0.06	#52	—	—	80	3/64″				5/32″
1	0.073	#48	64	#52	72	#53		56	#54	5/32″
2	0.086	#43	56	#50	64	#50		—	—	3/16″
3	0.099	#38	48	#47	56	#45		—	—	3/16″
4	0.112	#33	40	#43	48	#42		32,36	45,44	¼″
5	0.125	#30	40	#39	44	#37		36	40	¼″
6	0.138	#28	32	#36	40	#33		36	34	5/16″
7	0.151		—	—	—	—		30,32,36	31,31,1/8″	5/16″
8	0.164	#19	32	#29	36	#29		30,40	30,28	11/32″
9	0.177		—	—	—	—		24,30,32	29,27,26	11/32″
10	0.19	#11	24	#25	32	#21		28,30	23,22	3/8″
12	0.216		24		28			32	13	7/16″
14	0.242	D						20,24	10,7	7/16″
¼″	0.25	¼″ or E	20	#7	28	#3	32	24,27,32	4,3,7/32″	7/16″
16	0.268		—	—	—	—		18,20,22	7/32″,2	½″
18	0.294		—	—	—	—		18, 20	B,D	9/16″
5/16″	0.3125	O	18	F	24	I	32	20,27,32	17/64″,J,9/32	9/16″
20	0.32							16,18,20	G,17/64″,I	5/8″
22	0.346							16, 18	9/32″,L	5/8″
24	0.372							16, 18	5/16″,O	5/8″
3/8″	0.375	V	16	5/16″	24	Q	32	20, 27		5/8″
26	0.398	Y						14, 16	21/64″,R	11/16″
28	0.424	7/16″						14, 16	T,23/64″	11/16″
7/16″	0.4375	7/16″	14	U	20	25/64″	28	24, 27		
30	0.45	29/64″						14, 16	V,25/64″	7/8″
½″	0.5000	½″	13(*see note 1*)	27/64″	20	29/64″	28	12,24,27		
			12							¾″
9/16″	0.5625	9/16″	12	31/64″	18	33/64″	24	27		
5/8″	0.625	5/8″	11	17/32″	18	37/64″	24	12,27		
11/16″	0.68753	11/16					24			
¾″	0.75		10	21/32″	16		20	12,27		1 1/8″
7/8″	0.875		9	49/64″	14		20	12,18,27		1 5/16″
1″	1		8	7/8″	14		20	12,27		1½″

1. In the Unified Series the ½ inch size has 12 threads per inch, but the American Standard retains 13 threads per inch.