

# UNC / UNF / Metric Thread Reference Chart

Tip: Set your PDF viewer to "Actual size" before printing to maintain scale.

## UNC & UNF Thread Chart

Size	Major Dia.	UNC (Coarse) TPI	UNF (Fine) TPI	UNEF (Extra Fine) TPI
#0	0.060"	—	80	—
#1	0.073"	64	72	—
#2	0.086"	56	64	—
#3	0.099"	48	56	—
#4	0.112"	40	48	—
#5	0.125"	40	44	—
#6	0.138"	32	40	—
#8	0.164"	32	36	—
#10	0.190"	24	32	—
#12	0.216"	24	28	32
1/4"	0.250"	20	28	32
5/16"	0.3125"	18	24	32
3/8"	0.375"	16	24	32
7/16"	0.4375"	14	20	28
1/2"	0.500"	13	20	28
9/16"	0.5625"	12	18	24
5/8"	0.625"	11	18	24
3/4"	0.750"	10	16	20
7/8"	0.875"	9	14	20
1"	1.000"	8	12	20
1-1/8"	1.125"	7	12	18
1-1/4"	1.250"	7	12	18
1-1/2"	1.500"	6	12	18

Note: For sizes #0–#12, major diameter = (Size # x 0.013) + 0.060" | UNC = Unified National Coarse | UNF = Unified National Fine | UNEF = Extra Fine

## How to Read Thread Callouts

### Inch Example: 1/4-20 UNC

- 1/4** = Major diameter (0.250")
- 20** = Threads per inch (TPI)
- UNC** = Unified National Coarse (thread series)

### Metric Example: M8 x 1.25

- M8** = Major diameter (8 mm) — "M" indicates metric
- 1.25** = Thread pitch (1.25 mm between threads)
- Tip:** Lower pitch number = finer thread

# UNC / UNF / Metric Thread Reference Chart

## Metric Thread Sizes (ISO)

Size	Major Dia.	Coarse Pitch	Fine Pitch	Approx. Inch Equiv.
M3	3.0 mm	0.5 mm	0.35 mm	≈ #4
M4	4.0 mm	0.7 mm	0.5 mm	≈ #8
M5	5.0 mm	0.8 mm	0.5 mm	≈ #10
M6	6.0 mm	1.0 mm	0.75 mm	≈ 1/4"
M8	8.0 mm	1.25 mm	1.0 mm	≈ 5/16"
M10	10.0 mm	1.5 mm	1.25 mm	≈ 3/8"
M12	12.0 mm	1.75 mm	1.5 mm	≈ 1/2"
M14	14.0 mm	2.0 mm	1.5 mm	≈ 9/16"
M16	16.0 mm	2.0 mm	1.5 mm	≈ 5/8"
M18	18.0 mm	2.5 mm	2.0 mm	≈ 3/4"
M20	20.0 mm	2.5 mm	2.0 mm	≈ 3/4"
M22	22.0 mm	2.5 mm	2.0 mm	≈ 7/8"
M24	24.0 mm	3.0 mm	2.0 mm	≈ 1"
M30	30.0 mm	3.5 mm	2.0 mm	≈ 1-1/4"
M36	36.0 mm	4.0 mm	3.0 mm	≈ 1-1/2"

■ **Critical: Metric and inch threads are NOT interchangeable, even when diameters appear similar.**

Example: M8 (0.315") looks close to 5/16" (0.3125") but the threads will NOT mate properly. Never force them together.

## Tap Drill Size Quick Reference — 75% Thread

### Inch (UNC / UNF)

Thread	TPI	Tap Drill	Decimal
#4-40	40	#43	0.089"
#6-32	32	#36	0.106"
#8-32	32	#29	0.136"
#10-24	24	#25	0.149"
#10-32	32	#21	0.159"
1/4-20	20	#7	0.201"
1/4-28	28	#3	0.213"
5/16-18	18	F	0.257"
5/16-24	24	I	0.272"
3/8-16	16	5/16"	0.312"
3/8-24	24	Q	0.332"
7/16-14	14	U	0.368"
1/2-13	13	27/64"	0.422"
1/2-20	20	29/64"	0.453"
5/8-11	11	17/32"	0.531"
3/4-10	10	21/32"	0.656"

### Metric (Coarse)

Thread	Pitch	Tap Drill	Inch Approx.
M3	0.5 mm	2.5 mm	#39 (0.099")
M4	0.7 mm	3.3 mm	#30 (0.128")
M5	0.8 mm	4.2 mm	#19 (0.166")
M6	1.0 mm	5.0 mm	#8 (0.199")
M8	1.25 mm	6.8 mm	H (0.266")
M10	1.5 mm	8.5 mm	R (0.339")
M12	1.75 mm	10.2 mm	Y (0.404")
M14	2.0 mm	12.0 mm	15/32" (0.469")
M16	2.0 mm	14.0 mm	35/64" (0.547")
M18	2.5 mm	15.5 mm	39/64" (0.609")
M20	2.5 mm	17.5 mm	11/16" (0.688")
M24	3.0 mm	21.0 mm	53/64" (0.828")
M30	3.5 mm	26.5 mm	1-3/64" (1.047")
M36	4.0 mm	32.0 mm	1-17/64" (1.266")

75% thread depth is standard practice — provides full strength with minimal tap breakage risk.

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## Coarse vs Fine Thread — When to Use Each

Application	Recommended	Reason
General construction	Coarse (UNC)	Faster install; forgiving in field conditions
Automotive / high vibration	Fine (UNF)	Vibration resistance; high strength requirements
Aluminum or plastic	Coarse (UNC)	Resists stripping in soft materials
Hardened steel	Fine (UNF)	Better thread engagement in dense material
Outdoor / dirty environments	Coarse (UNC)	Tolerates dirt and corrosion better
Precision adjustment	Fine (UNF)	More turns per inch = finer control
Thin-wall tubing	Fine (UNF)	More threads engage across short depth
Hydraulic fittings	Fine (UNF)	Better seal and vibration resistance

## How to Identify an Unknown Thread

Step	Action	How
1.	Measure Diameter	Use calipers on the thread OD. Clean metric number = metric; matches inch fraction = inch.
2.	Determine Pitch	Use a thread pitch gauge, or count peaks in 1" (= TPI), or measure mm between thread peaks.
3.	Confirm Thread System	Match diameter + pitch to this chart. Ex: 0.375" + 16 TPI = 3/8-16 UNC. 8mm + 1.25mm = M8.
4.	Verify with a Known Nut	Thread a known nut on smoothly with no binding or wobbling. Almost-fits = wrong system. Never force!