Tap Drill Hole Sizes

Page — Tap Drill Hole Sizes (10-32 and 1/4-20)

Before tapping a hole, the correct **drill bit diameter** must be used. The tap drill is slightly smaller than the final thread size so the tap can cut threads into the material properly.

10-32 Tap Holes

For a **10-32 thread**, the correct tap drill size is:

- **#21 drill bit (0.159")**

This size provides:

- Enough material for strong threads
- Proper engagement for aluminum tapping
- Reduced risk of stripping when used correctly

1/4-20 Tap Holes

For a **1/4-20 thread**, the correct tap drill size is:

- **#7 drill bit (0.201")**

This size provides:

- Strong, coarse threads suitable for higher loads
- Better durability in structural applications
- Lower chance of thread failure compared to tighter fits

Why Correct Hole Size Matters

Using the wrong tap drill size can cause:

- Weak or stripped threads
- Difficulty starting the tap
- Broken taps inside the material
- Poor fastener holding strength

Best Practice

- Always verify drill size before tapping
- Use a center punch before drilling
- Drill perpendicular to the surface
- Use cutting fluid when tapping aluminum

Key Idea

Tap drill size determines thread strength and reliability. In FRC, **#21 for 10-32** and **#7 for 1/4-20** are standard sizes that ensure strong, consistent threaded holes.

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