Sheet Thickness

Sheet materials in FRC come in standard thickness increments. These increments strongly affect stiffness, weight, and how parts behave under load.

Common Sheet Thickness Increments

Most sheet materials (aluminum, polycarbonate, plastics) are typically available in:

- 1/16"
- 1/8"
- 3/16"
- 1/4"
- 3/8"
- 1/2"

These standard sizes are what most FRC designs are based on.

How Thickness Affects Strength

1/16"

- Very lightweight
- Low stiffness
- Easily flexes under load
- Best for non-structural covers or light panels

1/8"

- Common general-purpose thickness
- Good balance of stiffness and weight
- Widely used for gussets and light structural plates

3/16"

- Noticeably stiffer than 1/8"
- Much better resistance to bending and vibration

- Used when higher structural rigidity is needed

1/4"

- High stiffness and strength
- Strong resistance to bending and impact
- Significant weight increase
- Used for structural or high-load plates

3/8"

- Very rigid
- Used in specialized high-load or mounting applications
- Often heavier than necessary for most robot mechanisms

1/2"

- Extremely stiff and strong
- Minimal flex even under heavy loads
- Very heavy for robotics use
- Typically reserved for specialty or extreme-load components

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Why Teams Pocket Parts

- Reduces weight without fully reducing stiffness where it matters
- Maintains strength along outer load paths while removing unnecessary material
- Improves robot performance by lowering overall mass
- Allows designs to stay structurally efficient instead of uniformly overbuilt

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Key Idea

FRC sheet design is about balancing standard thickness options with strategic material removal. Pocketing helps teams keep strength where needed while eliminating excess weight.

Revision #2
Created 25 June 2026 21:06:27 by eharis
Updated 26 June 2026 11:50:25 by eharis