Standoffs

Standoffs are rigid spacers with threaded ends or through-holes used to separate and support two parallel components at a fixed distance. They are commonly used in FRC to build compact, lightweight assemblies.

What They Do

Standoffs:

- Maintain a fixed distance between plates or components
- Provide structural support without adding bulky brackets
- Allow fasteners to pass through or thread into both ends
- Help keep assemblies rigid and aligned

Common Types

- **Threaded standoffs:** Threads on both ends for bolting into components
- **Through-hole standoffs:** Bolts pass through the entire length
- **Hex standoffs:** Easier to grip with a wrench during installation

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Common Applications

- Electronics mounting plates
- Sensor and controller stacking
- Gearbox and mechanism spacing
- Lightweight structural supports between plates
- Compact multi-layer assemblies

Materials

- Aluminum (most common in FRC)
- Steel (higher strength, heavier)
- Plastic (light-duty or electrical isolation)

Aluminum is preferred for most mechanical applications due to its strength-to-weight ratio.

Best Practices

- Use the correct length to avoid preloading or flexing parts
- Ensure threads are fully engaged on both ends
- Avoid over-tightening, which can strip threads in softer materials
- Combine with washers when needed for surface protection

Key Idea

Standoffs create precise, rigid spacing between components, allowing FRC teams to build compact and organized assemblies while maintaining strength and alignment.

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