

# Gussets

Gussets are flat structural plates used to reinforce joints between two or more components, typically at corners or intersections of extrusion in FRC robots.

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## Purpose

Gussets:

- Strengthen 90° and angled joints
  - Reduce flex in structural frames
  - Distribute load across multiple fasteners
  - Improve rigidity without adding much weight
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## Custom Gussets

Custom gussets are designed by teams and usually cut from sheet material.

### Common materials:

- 5052 aluminum (most common)
- Polycarbonate (for light-duty or flexible use)
- SRPP (for lightweight structural applications)

### Characteristics:

- Fully customizable geometry
  - Can be optimized for weight and packaging
  - Require CAD, machining, or sponsor manufacturing (laser/waterjet/CNC)
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## Vendor Gussets (WCP and Similar Suppliers)

Vendor gussets are pre-designed and pre-cut parts from suppliers such as West Coast Products.

### Characteristics:

- Standardized hole patterns (often 0.5" spacing compatible)
- Fast to integrate into designs
- Consistent strength and manufacturing quality
- Reduce design and fabrication time

### **Typical features:**

- Pre-drilled patterns for 1/2" or 1x1 extrusion
  - Multiple angle options (90°, 45°, L-brackets, etc.)
  - Lightweight pocketed designs
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## **When to Use Each**

- Custom gussets → when optimizing weight, packaging, or unique geometry
  - Vendor gussets → when speed, simplicity, and reliability are more important
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## **Key Idea**

Gussets reinforce structural joints in FRC robots. Custom gussets provide maximum design flexibility, while vendor gussets offer fast, reliable, and standardized solutions for common structural connections.

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