

BONDING

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INTRODUCTION TO BONDING ADHESIVES

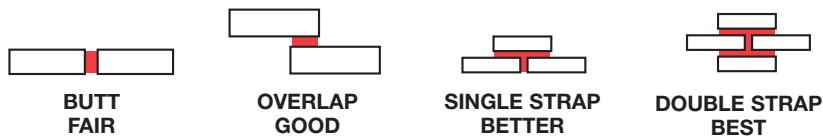
Within the broad range of Loctite® brand adhesives you will always find the solution to your bonding challenge. It is however, extremely important to have at least basic knowledge of adhesive methodology in order to successfully bond two substrates together. The three major causes of bonding failures are attributed to:

- Poor evaluation of the bonding assembly
- Inadequate substrate preparation
- Improper adhesive selection

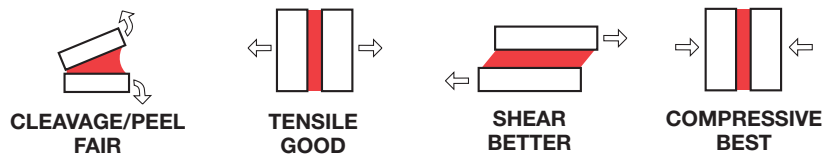
BONDING ASSEMBLY

Bonding assembly has a direct impact in the adhesive performance. Choose a combination of types of joints or joint stress distribution that maximizes bonding strength. Below are different types of joints and stress distribution:

TYPES OF JOINTS

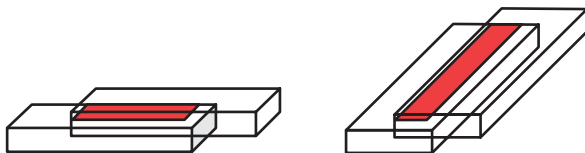


TYPES OF JOINT STRESS DISTRIBUTION



JOINT WIDTH VS. OVERLAP

A wider bond line (Width) will be stronger than a lengthier one (Overlap):



SURFACE PREPARATION

Abrasive Methods

Rubbing or striking a surface with hard, coarse material.

Abrasive examples:

- Sanding: Rubbing with abrasive paper or cloth (for small area/superficial wear-down)
- Blasting: Striking with steel grit, sand, or other abrasive material (for large areas/deep wear-down)

Chemical Methods

Cleaning process that uses solvents to dissolve contaminants.

Chemical examples:

- Solvent Dip: Immersing in solvent
- Solvent Wipe: Rubbing with solvent-soaked wipe
- Vapor Degreasing: Solvent in vapor form
- Ultrasonic Cleaning: Solvent dip method with high-frequency sound waves that vibrate the dirt away

LOCTITE® BRAND ADHESIVE QUICK SELECTOR

| Product | Loctite® 404™ Quick Set™ Instant Adhesive | Loctite® 330™ Depend® Adhesive | Loctite® Fixmaster® Poxy Pak™ Adhesive | Loctite® H8600™ Weld Eliminator™ Structural Adhesive |
|--|---|---|---|--|
| Color | Clear | Pale Yellow | Clear | Blue |
| Temperature Range | Up to 180°F | Up to 250°F | Up to 180°F | Up to 300°F |
| Bond Time* | 20 to 40 seconds | 5 minutes | 5 minutes | 45 minutes |
| Full Cure* | 24 hours | 24 hours | 1 hour | 24 hours |
| Gap Fill | Small Gaps | Medium Gaps | Large Gaps | Medium Gaps |
| Agency Approvals | CFIA, ABS, Mil-Spec | CFIA | CFIA, ABS | In Progress |
| Bonds to a wide range of materials, including: | Metal, plastic, and rubber | Ferrite, wood, ceramic, plastic, and metal | Glass, hard plastics, rubber, and metal | Galvanized steel, other metals, and most plastics |
| Application Examples | Make o-rings, bond cuts in conveyer belts, nylon rails in production line, brass rings on spacer shafts | Bond metal labels to equipment, aggregate wear plates, vibration analysis pickup discs to equipment | Repair cracks in equipment, fill in damage on fiberglass tanks, general purpose bonding | Patching metal surfaces, sleeving metal conduit and ducts, metal fabrication (e.g. wagons, box trailers, material handling containers) |