

CLS-4000™

When you need something ceramic lined, we got you covered with **CLS-4000™ Technology** or more commonly referred to as “vacuum bonding” This industry proven method of joining dissimilar materials uses high strength structural aerospace epoxies in place of less effective adhesives. By employing this technology for abrasion resistant applications, the resulting bond strength, increased impact strength and wear resistance material options are unmatched.

CLS-4000™ vacuum bonding provides opportunities to extend equipment life, reduce component weight and provide wear solutions for even the most complicated shapes. Deploying this technology over a wide range of industries has provided our customers money saving opportunities to refurbish old equipment, install wear panels only where needed and reduce downtime by relying on a wear resistant product they can count on.

CLS-4000™ products can withstand temperatures up to 350°F and with bond shear strengths exceeding 5,000 PSI we can provide solutions for your toughest environment.

When, Where and Why choose **CLS-4000™ Technology**?

When

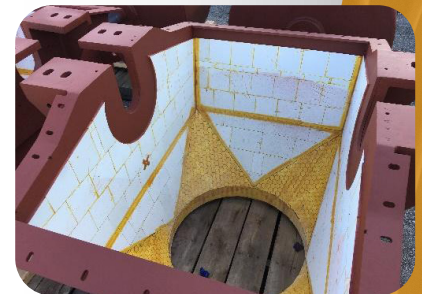
- ✓ Other adhesion methods have failed, greater impact resistance is needed and material loss could possibly damage other equipment.
- ✓ Component weight is an issue and using alumina ceramic versus CCO, AR plate or other hardened steels can lessen the load on motors, supports, gears and bearings
- ✓ Complicated shapes require an abrasion resistant lining

Where

- ✓ Dynamic applications like fans, screw conveyors and airlocks
- ✓ Surfaces that need to be machined, ground or honed to exacting tolerances
- ✓ Guaranteed bonding performance is a must.

Why

- ✓ Because **CLS-4000™** provides the highest bond strength, improves component flexibility and impact resistance on materials commonly used for severe abrasion applications



**So Why choose CLS-4000™ Technology over other adhesion methods?
 It's strength is UNMATCHED making it the best wear solution money can buy!**

Adhesive Comparison Chart			
	CLS-111 (White) or CLS-444 (Red)	CLS-773	CLS-4000
Type	RTV Silicone	High Modulus Gel Epoxy	Toughened Epoxy Film
Color	White or Red	Gray	Yellow (250), Tan (350)
Hardness	30 - 32 Shore A	80 - 85 Shore D	n/a
Operating Temperature	400° F (White) or 500° F (Red)	180° F (Dry) or 130° F (Wet)	250° F (Yellow) or 350° F (Tan)
Conditions	Dry	Wet or Dry	Wet or Dry
Applications	Flexible Substrates Stationary Parts Sealing/Gaskets	Rigid Substrates Stationary Parts Chemical Resistant	Flexible or Rigid Substrates Moving or Stationary Parts Impact Zones
Installation	CLSI Shop or Field	CLSI Shop or Field	CLSI Shop Only
Lap Shear Bond Strength¹	< 500 psi	2,400 psi	> 5,000 psi
Adhesion	Good	Better	Best

1. Lap Shear Bond Strength tested per modified version of ASTM D1002. Test performed with alumina ceramic tiles adhered to carbon steel substrate. Disclaimer: All data is for reference only, please contact your CLSI Sales representative to recommend a system suitable for your specific application. Rev 08/29/2019



Our **CLS-4000™** will bend over backwards or take a beating. If your application is as severe as these pictures below, then this product is right for you!

