

# Engineered Innovation.

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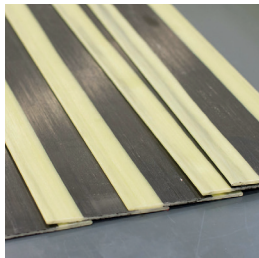
## CCS™ product overview.



**CCS™ Co-Ex** is a combination of short glass filled nylon co-extruded with adhesive to create a continuous cross section with multiple materials.



**CCS™ Set** is a continuous glass reinforced two-dimensional profile designed to provide strength, stiffness, and rigidity to a straight profile.



**CCS™ Hybrid** utilizes a custom combination of continuous glass, carbon fiber, and fabrics to provide targeted strength, stiffness, and rigidity in a straight profile.



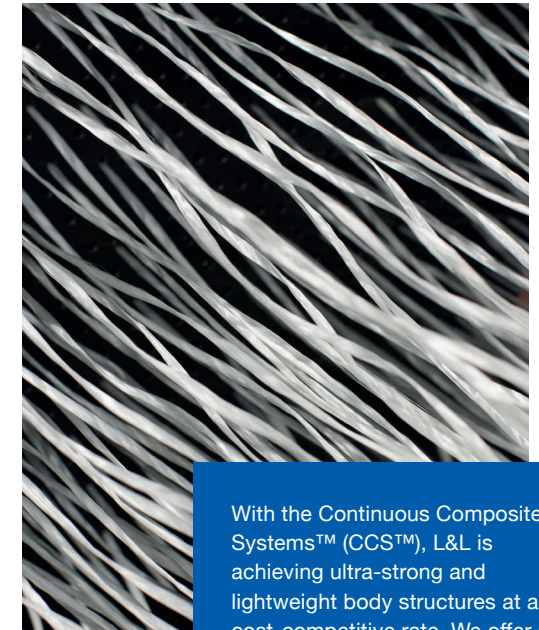
**CCS™ Extreme** is a highly reinforced two-dimensional continuous carbon fiber profile designed to provide ultimate strength, stiffness, and rigidity to a straight profile.

## L&L Products

SOLUTION  
L&L Reinforce

VERSION  
September 2020

## Continuous Composite Systems™ (CCS™) For Enhanced Strength and Rigidity.



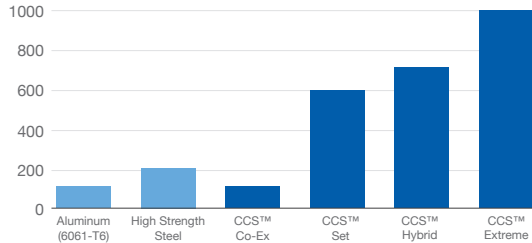
With the Continuous Composite Systems™ (CCS™), L&L is achieving ultra-strong and lightweight body structures at a cost-competitive rate. We offer a series of products manufactured for all material needs: CCS™ Co-Ex, CCS™ Set, CCS™ Hybrid and CCS™ Extreme.

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## Components with ultra-strong and lightweight body structures.

CCS™ combines highly engineered sealants and adhesives with a fiber-reinforced composite carrier in a two-dimensional profile designed to provide strength, stiffness, and rigidity to a lightweight structure.

### ULTRA-HIGH STRENGTH TO WEIGHT RATIO



### MEETING EVERY PRODUCTS' REQUIREMENTS

L&L Products' Continuous Composites Systems™ are composed of a variety of forms including: CCS™ Co-Ex, CCS™ Set, CCS™ Hybrid, and CCS™ Extreme. Our highly experienced engineering team works with the customer to design a CCS™ part matching the specific requirements of the application its serving.

Only L&L's CCS™ can couple our superior adhesives to pultruded parts seamlessly in a continuous process, reducing manufacturing costs and time-to-delivery.



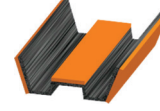
CCS™ CO-EX



CCS™ CO-EX



CCS™ CO-EX



CCS™ CO-EX

### KEY PRODUCT ATTRIBUTES

- Consistent quality
- Mass: 75 % lighter than steel; 30 % lighter than aluminum
- Low line rates and inexpensive die costs
- Corrosion resistant
- Nonconductive and insulating with a low co-efficient of thermal expansion
- Excellent structural properties
- High predictability in energy management

Products	Application type	Markets of interest
<b>CCS™ Co-Ex</b>	Crash, NVH, tube reinforcement	Automotive
<b>CCS™ Set</b>	Stiffness, insulating, part consolidation	CV, Industrial, Architectural
<b>CCS™ Hybrid</b>	Crash, stiffness, metal replacement	Automotive, CV
<b>CCS™ Extreme</b>	Crash, stiffness, wind turbine spar caps	Automotive, Aerospace, Energy

## Engineering expertise for every application.

With our CCS™ products and process, L&L Products can deliver a cost-effective, ultra-high strength reinforcement solution that brings extensive engineering knowledge, advanced CAE modeling, and the ability for adhesive use in a variety of applications.



**STRENGTH**  
Ultra-high strength-to-weight ratio



**EXPERTISE**  
In-house engineering expertise



**PROCESS**  
Seamless integration of adhesives



**CAPABILITIES**  
Advanced CAE capabilities



**COMPETITIVE**  
Competitive pricing