

# Composite Sheets For High Fatigue Loads

**NorPLY™**  
by Norplex Advanced Composites

## Why NorPLY™?

NorPLY™ utilizes a proprietary production process designed to optimize performance under load. The result is a material offering higher performance and longer application life than similar composite materials. Not only does NorPLY™ outperform similar composite materials, but NorPLY™ also offers significant advantages over steel such as:

### Excellent Fatigue Life

Springs produced with NorPLY™ are highly fatigue-resistant, able to endure many load cycles without failure.

### Greater Energy Storage Capacity than 1060 Spring Steel

NorPLY™ composite sheets offer both lower modulus and density than traditional spring steels. These important properties allow for greater specific strain capacity when placed under mechanical load.

### Weight Reduction

Designing with NorPLY™ composites provides component weight reduction possibilities in a range from 10% to as great as 60% when compared to steel.

### High Strain Capability

The fiber orientation of NorPLY™ products is perfectly suited for use in demanding, high strain applications.

### High Strength-to-Weight Performance

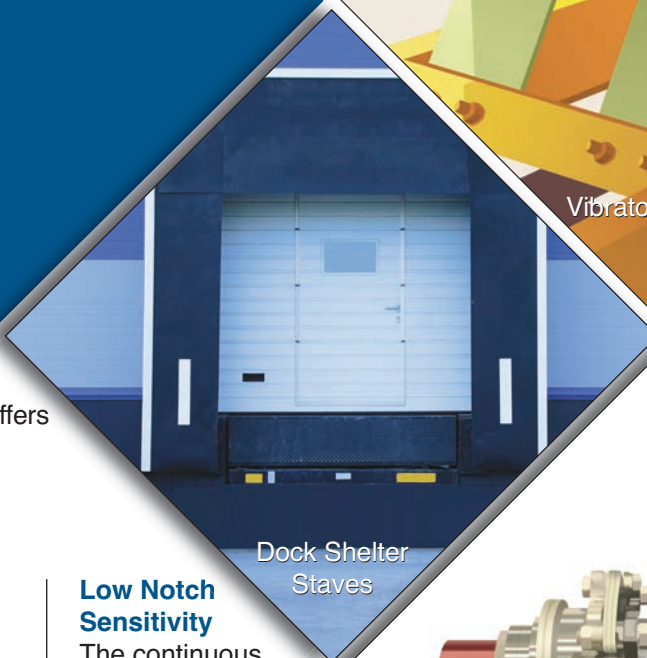
Applications designed with NorPLY™ composites deliver an exceptional combination of material performance and weight reduction.

### Resistant to Cleaning Fluids

NorPLY™ is resistant to most cleaning fluids, eliminating the risk of material degradation inherent in metals.



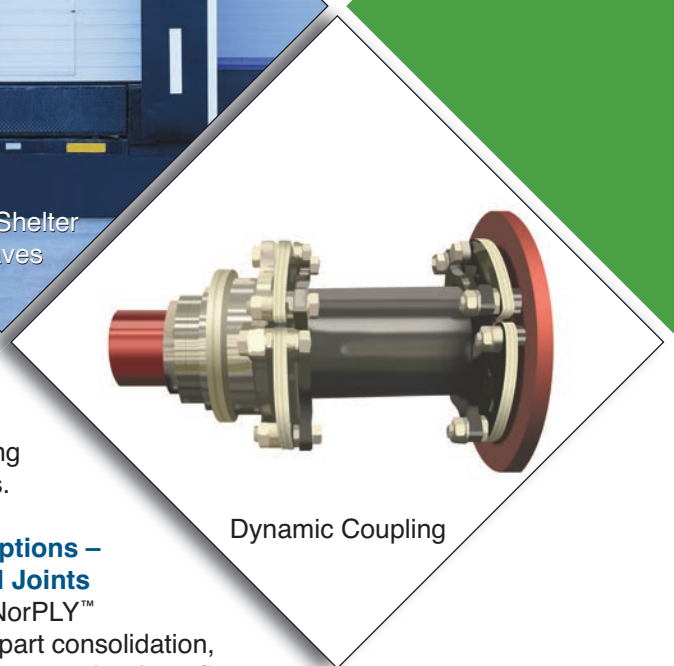
Vibratory Springs



Dock Shelter  
Staves

### Low Notch Sensitivity

The continuous fiber reinforcements used in NorPLY™ greatly reduces the risk of fracturing during machining operations.



Dynamic Coupling

### Increased Design Options – from Springs to Rail Joints

Design options with NorPLY™ composites allow for part consolidation, surface textures and many other benefits that are hard to achieve with metals.

### Less Downtime in Harsh Environments

NorPLY™ composites will not rust, while simultaneously offering high dimensional stability in hot and cold, wet and dry environments providing long part life in harsh conditions.

### High Impact Strength

The construction of continuous fiber reinforced composites naturally provides high impact strength performance in demanding applications.

### Chemical and Corrosion Resistance

NorPLY™ composite materials provide long term resistance to severe chemicals and harsh environments, offering extended performance life.

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## Availability

NorPLY™ 1002 is supplied as cured flat panels. Panel sizes up to 48" x 72" (1220mm x 1830mm) and are available in thicknesses ranging from 0.030" to 2.0" (0.76mm to 51mm).

NorPLY™ 1002 is available in unidirectional, crossply or isotropic fiber orientation, each offering a different balance of properties.

## Applications

NorPLY™ is designed to outlast and outperform competing materials as a highly fatigue-resistant material that can be cycled for millions of loads without failure. Applications include:

- Vibratory Springs
- Shocks and Struts
- Insulated Joints
- Insulation Spacers
- Dock Shelter Staves
- Furniture Springs
- Flexible/Dynamic Couplings

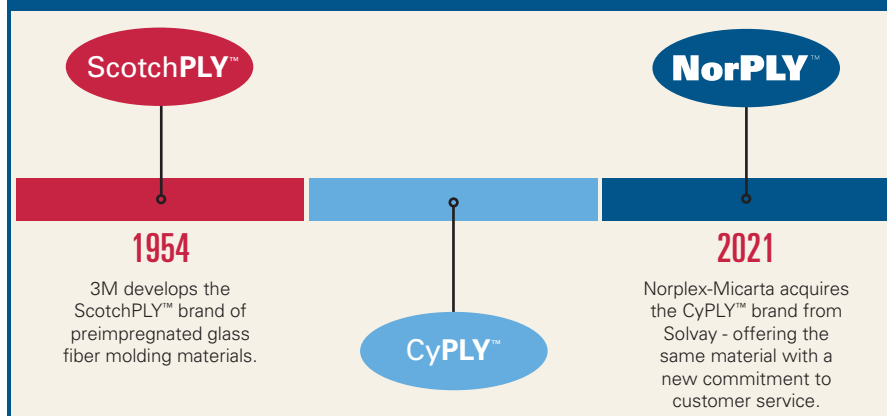


NorPLY™ Sheet



Machined Spring

## A History Of Proven Performance

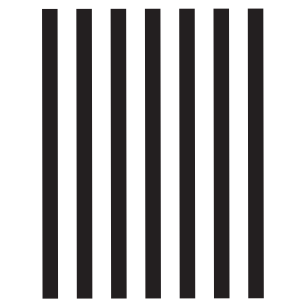


## About Norplex Advanced Composites

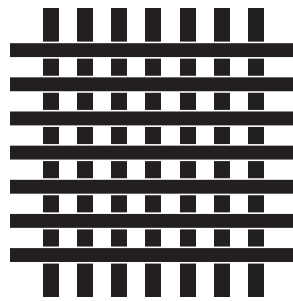
NorPLY™ is manufactured by Norplex Advanced Composites, the newest member of the Norplex family of businesses. Launched in 2020, Norplex Advanced Composites is focused on helping its customers create value through advanced composite materials and superior service from its state-of-the-art production facility in Manhattan, Montana. Specifically designed for NorPLY™ production, the new 32,000 square foot facility has been designed to streamline the manufacturing process and ensure the highest quality and fastest delivery possible.

Norplex Advanced Composites draws on Norplex-Micarta's one hundred plus years of experience in impregnation and lamination technology to design and develop advanced composites and prepregs. With a focus on customer satisfaction, Norplex Advanced Composites is building its own legacy of innovation, quality, and unparalleled service.

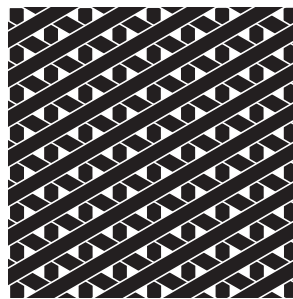
## Examples of fabric lay up options



Unidirectional



Crossply



Isotropic