



## » APPLICATION BULLETIN

# Thermoset Composite Springs For Indoor and Outdoor Furniture

**Bringing you one of the most comprehensive spring portfolios in the industry.**

Metal springs have a few shortcomings. They're prone to rust. They're heavy. And they lack strength and flexibility to provide the consistent ride that users demand.

Make the switch to Avient's thermoset composite springs, made with our proprietary resin/fiber reinforcement technologies, to gain value in a variety of furniture spring applications:

- Superior overall performance
- Long term corrosion resistance
- High fatigue strength
- Deep deflection
- Excellent inter-laminar shear strength
- Creep resistance
- Minimal work hardening
- Consistent, repeatable cycles for a lifetime of use

With extensive experience in composite spring technology, a wide range of rectangular sizes, and rapid, customized product development capabilities, we can help you create durable, reliable and cost-effective furniture for indoor or outdoor use.



Avient's composite springs are manufactured using a continuous pultrusion process. Resin impregnated, continuous glass fibers are drawn through a curing die of a specific cross section, yielding consistent quality, dimensions and mechanical properties to provide more consistent spring rates than alternate materials. Reinforcement fiber configurations are designed to provide high flexural strength and modulus in the axial direction plus fastener bearing strength in the transverse direction.

| THICKNESS (in)* | RESIN       | FLEXURAL STRENGTH (x10 <sup>3</sup> psi) | FLEXURAL MODULUS (x10 <sup>6</sup> psi) | STRAIN (%) | FIBER CONTENT (wt%) |
|-----------------|-------------|--|---|------------|---------------------|
| MIN             | Vinyl Ester | 115                                      | 4.0                                     | 3.3        | 68                  |
| AVG             | Vinyl Ester | 124                                      | 4.6                                     | 3.2        | 71                  |
| MIN             | Epoxy       | 138                                      | 5.1                                     | 2.3        | 65                  |
| AVG             | Epoxy       | 153                                      | 5.5                                     | 2.3        | 67                  |

\* Flexural properties are dependent on thickness. Avient offers various standard thicknesses as well as custom sizes to meet your design goals.



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