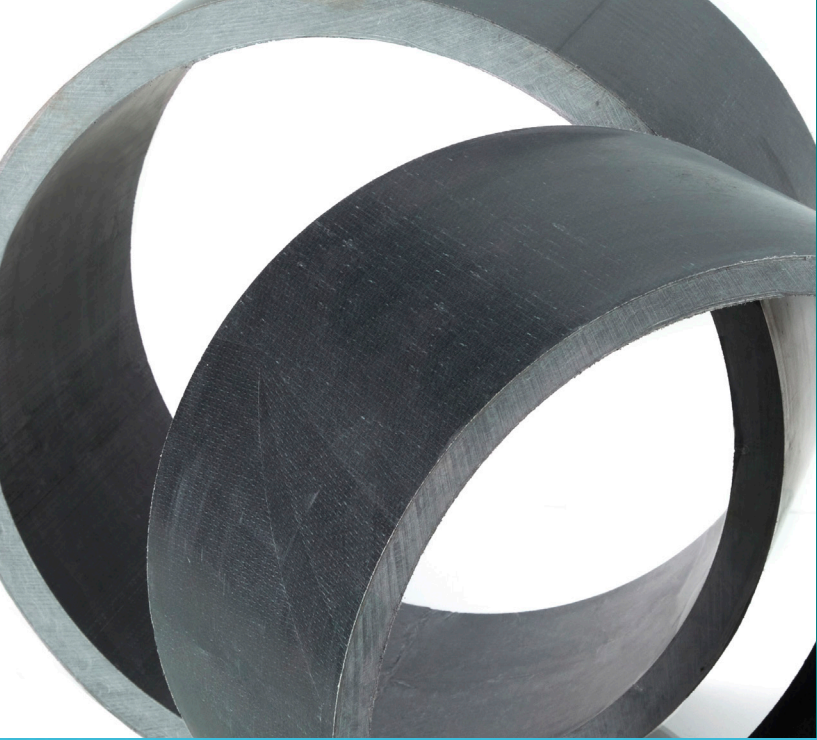


➤ PRODUCT OVERVIEW & SELECTION GUIDE

# GRIDCORE™

COMPOSITE UTILITY POLES



## INTRODUCING GRIDCORE™ COMPOSITE UTILITY POLES FOR ELECTRIC POWER DISTRIBUTION

GridCore™ Composite Utility poles from Avient are engineered to enhance grid resilience as a superior alternative to wood, steel, or concrete electric distribution poles and structures. Compared to traditional pole materials, fiber reinforced polymer (FRP) composites are more durable, require less maintenance, and provide a longer service life. They are also significantly lighter in weight, allowing for safer and simplified installation.

### KEY PERFORMANCE ADVANTAGES



#### **Lower Total System and Lifecycle Cost**

GridCore Composite Poles have an expected service life of up to 80 years, compared to 30-40 years for wood poles. Considering the cost of replacing aged, damaged, and failed poles, the longer lifespan of an FRP pole results in total cost savings over the life of the pole.



#### **Lightweight and Safer Installation**

GridCore poles are significantly lighter than equivalent wood and concrete poles and can be installed using light-duty equipment and without expensive cranes. The lower weight can reduce the opportunity for worker injuries and strain on equipment. The poles have an excellent dielectric strength that allows for safer installation near energized lines.



#### **Lower Maintenance and Resistant to Pests**

Also contributing to lower lifecycle cost, composite poles require only visual inspection and will not sustain damage from woodpeckers and insects, reducing maintenance and repair costs. For more severe damage such as vehicle impacts, repairs are simplified with available repair kits and instructions.



#### **No Assembly Required**

GridCore pultruded composite poles are fully fabricated as one-piece, uniform diameter, requiring only one size through-bolt length, saving assembly labor in the field, and reducing outage time.



#### **Customized and Consistent Material**

Manufactured in a continuous pultrusion process, GridCore poles are engineered for consistent strength and uniform appearance and are not subject to warping, shrinkage, or splintering. Unlike wood they can withstand strong storms without breaking.



#### **Simple to Drill**

GridCore poles can be purchased pre-drilled, and they can easily be field drilled using a handheld cordless drill and recommended bits.

## POLE SELECTION GUIDE

		Southern Yellow Pine <sup>1</sup> Equivalent Wood Pole			GridCore FRP Pole <sup>2</sup> 14 in x .750 in	
		Length (ft)	Load Class <sup>3</sup>	Allowable Class Load <sup>4</sup> (kip)	Weight (lb)	Deflection <sup>5</sup> (in)
40	3	1.95	1360	35	1040	12
	2	2.41	1580	32		14
	1	2.93	1810	30		18
	H1	3.51	2050	28		21
	H2	4.16	2310	26		25
45	3	1.95	1630	45	1170	17
	2	2.41	1880	41		21
	1	2.93	2160	38		26
	H1	3.51	2450	36		31
	H2	4.16	2760	33		37
50	3	1.95	1910	56	1300	24
	2	2.41	2210	52		30
	1	2.93	2530	48		36
	H1	3.51	2880	45		44
	H2	4.16	3240	42		52
55	3	1.95	2210	68	1430	33
	2	2.41	2550	63		40
	1	2.93	2930	58		49
	H1	3.51	3320	54		59
	H2	4.16	3740	51		70
60	3	1.95	2520	82	1560	43
	2	2.41	2910	76		53
	1	2.93	3340	70		65
	H1	3.51	3790	65		78
	H2	4.16	4270	61		92
65	3	1.95	2840	97	1690	56
	2	2.41	3290	90		69
	1	2.93	3770	83		84
	H1	3.51	4280	77		100
	H2	4.16	4820	72		119
70	3	1.95	3180	114	1820	71
	2	2.41	3690	105		87
	1	2.93	4220	97		106
	H1	3.51	4790	90		127
	H2	4.16	5390	85		150

<sup>1</sup> Wood properties data are per ANSI O5.1-2022 Table 1. For other species shown in the table above, contact Avient for suggestions.

<sup>2</sup> FRP pole sizes are selected based on allowable Class loads specified in NESC Table 261-1. For construction, strength factor for FRP is 0.00.

<sup>3</sup> Load classes and pole embed lengths used in calculations are per ANSI O5.1-2022 tables. For load classes outside of those listed, please contact Avient.

<sup>4</sup> Horizontal load, 2ft from the pole tip. Allowable Class loads are based on NESC Table 261-1. For construction, strength factors for wood is 0.65.

<sup>5</sup> Pole tip horizontal deflection at the allowable Class load. Wood poles' diameters are per ANSI O5.1 tables, and their (tapered) flexural stiffness calculation is based on ASTM D1036-99 Eq. (5).

## FRP POLE SECTIONAL PROPERTIES

Pole Size	14.0 x .750 in	14.0 x .500 in*	12.0 x .375 in*
Outer diameter (in)	14.0	14.0	12.0
Wall thickness (in)	0.750	0.500	0.375
Inner diameter (in)	12.5	13.0	11.3
Moment of Inertia, I (in <sup>4</sup> )	687	484	232
Flex. Stiff., EI (lb-in <sup>2</sup> 10 <sup>6</sup> )	3437	2419	1158
Section Modulus, S (in <sup>3</sup> )	98.2	69.1	38.6
Allowable Moment, $\Phi$ FS (kip-ft)	368	259	145
Cross Sectional area, A (in <sup>2</sup> )	31.2	21.2	14
Weight (lb/ft)	26.0	17.7	11.4

\*Additional pole sizes and features are in development

## DESIGN PARAMETERS

	GridCore FRP Pole	Southern Yellow Pine Equivalent Wood Pole
Nominal Fiber Stress, F (psi)	45,000	8,000
NESC construction <sup>a</sup>	Grade B	
Strength factor, $\Phi$ <sup>a</sup>	1.0	0.65
Modulus of Elasticity, E <sup>b</sup> (10 <sup>6</sup> psi)	5.00	2.13
Estimated Density (lb/ft <sup>3</sup> )	120	65

<sup>a</sup> Per NESC Table 261-1

<sup>b</sup> Wood data are per ANSI O5.1-2022 Table 1. FRP data are from tests--nominal fiber stress is at 5% LEL; modulus of elasticity is at mean. Contact Avient for details.

## ABOUT AVIENT

Avient Corporation (NYSE: AVNT) is a global provider of specialized and sustainable materials solutions, with 9,300 employees and a revenue of approx. \$3.1 billion. Avient's Advanced Composites business segment specializes in lightweight, strong, cost-efficient, and customizable composite materials used in many different industries, from automotive to construction and from infrastructure to recreation.

Our diverse portfolio of purpose-engineered electrical components include Glasforms™ fiberglass reinforced insulator rods, guy insulators, crossarms, and pole profiles that meet the specific and rigorous demands of the electrical utility industry, and have been trusted by major utility product manufacturers for decades. Our advanced pultrusion processing capabilities combined with chemistry formulation and material science expertise have made us leaders in the industry. Our pultruded composite materials are proudly made in the USA in Birmingham, Alabama.

For the latest product information, please visit [avient.com](http://avient.com) or call +1.844.4AVIENT.



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