



RSSTANDARD[®]

Composite Utility Poles

Frequently Asked Questions (USA)



INFRASTRUCTURE FOR LIFE[®]



RS **STANDARD**[®]
Composite Utility Poles

**RS Technologies,
a division of Resin Systems Inc.**

www.RStandard.com

Email info@grouprsi.com
Toll Free +1 877 219 8002
Phone +1 403 219 8000
Fax +1 403 219 8001

2421 - 37th Avenue NE, Suite 400
Calgary, AB T2E 6Y7



Frequently Asked Questions
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1.0 Product Characteristics & Appearance

What pole lengths and classes are available?

The modular design of RStandard® poles provides the ability to make a wide variety of pole sizes and strengths. Our ten standard sized modules can be configured to build pole classes ranging from Class 5 to Class H6 in lengths from 30 ft. to 155 ft. [9.14 m to 47.24 m], RStandard poles can be used for distribution, transmission and telecommunication applications.

What are the benefits of the modular design?

The shorter, lighter modules are easier to lift, maneuver, transport and install. Since these modular sections nest together, storage and transportation costs are also reduced. In addition, modules are used to assemble a variety of pole lengths and classes, resulting in significantly reduced inventory requirements and associated costs.

What types of materials make up the RStandard pole?

The RStandard pole is manufactured from industry standard E-glass fibers bound together through a process called filament winding with polyurethane thermosetting resin. The end product is a composite, fiber-reinforced polymer material.

How much does an RStandard pole weigh?

In general, the poles are approximately 2/3 the weight of steel, 1/3 the weight of wood and 1/8 the weight of concrete poles resulting in the highest strength-to-weight ratio of any pole material in the industry. The individual weight of each module and pole can be found in the 'Pole Data Sheets' section of the technical binder. Due to the modular design of the poles, the lightweight sections make them much easier to handle, maneuver, transport and install.

How do RStandard pole diameters compare to wood poles?

For most heights and classes, the diameter of an RStandard pole is very similar to the diameter of an equivalent Western Red Cedar pole. The specific tip and butt diameters of RStandard poles can be found in the 'Pole Data Sheet' section of the Technical Binder.

What RStandard pole colors are available?

Grey and brown are the two standard pole colors. Custom colors are available depending upon order quantity.

How are these utility poles protected from ultra-violet (UV) rays and weathering effects?

The RStandard pole uses a durable aliphatic (UV stable) polyurethane resin in the outer surface of the pole wall which lasts for the life of the pole and prevents degradation from UV radiation and weathering effects. This integrated layer of protection does not scratch or flake off, offering far superior protection than traditional coatings and surface veils. RStandard poles are designed for a minimum service life of 65 years in South Florida and as much as 125 years in other climates.

How are the poles labeled?

There are ID labels affixed externally and to the inside base of every module for identification purposes. In addition, packaged poles include an aluminum pole ID tag affixed to the base module, with relevant identifying information for the pole. The axial alignment markings on the modules are applied with an ink jet and contain specific module ID, weight, manufacturing date and serial number information. If desired, a customer can easily use self-drilling screws to attach their own specific structure ID or other tags if required.

Are RStandard® utility poles environmentally friendly?

Yes. RStandard poles never need to be treated or maintained with any chemical additive or coating throughout their long service life. RStandard poles are inert therefore there is no leaching unlike wood poles, which keeps the environment free of hazardous associated preservative chemicals.

RStandard poles are made using an advanced polyurethane resin that does not emit hazardous air pollutants (HAPs) or volatile organic compounds (VOCs) during the manufacturing process. With no damaging pollutants emitted during manufacturing, RStandard poles can be produced efficiently with no health risks to workers or the community.

The modular design of RStandard composite poles allow individual poles to be nested in compact bundles when being transported. This leads to a significant improvement in the number of poles that can be shipped to the customer in a single truckload. The result is fewer trips, less fuel and less emissions. A fraction the weight of traditional materials, RStandard composite poles can be handled and installed using much smaller equipment. This again reduces CO₂ emissions and damage to the environment – from the time the pole leaves the factory, to the time the pole is set in the ground.

As a non-wood material, RStandard poles offer the opportunity to help preserve our forests. By reducing deforestation. RStandard poles are an environmentally sustainable utility pole solution. Based on estimated demand for wood utility poles in North America, switching to RStandard has the potential to save almost 4,000,000 million trees annually.

2.0 Product Performance & Design/Engineering

Are RStandard® poles designed and tested to meet recognized industry standards?

RStandard poles are designed to meet the applicable requirements of National Electrical Safety Code (NESC) Grade B and C as well as Canadian Standards Association (CSA) Grade 1 and 2 standards for overhead construction. RStandard poles have been subjected to third party independent testing conducted, or supervised, by recognized independent laboratories such as EDM International Inc. (Colorado, USA) and Kinectrics (Ontario, Canada).

To review the numerous in-house and third party testing conducted on RStandard composite utility poles, refer to the 'Testing Overview' section of the Technical Binder..

Has the electrical performance of RStandard poles been tested?

Yes. The RStandard pole was subjected to numerous electrical tests performed by Kinectrics Inc. of Toronto, ON. These tests showed that RStandard poles possess excellent dielectric properties, comparable to standard industry requirements for a hot stick or insulated boom.

The non-conductive nature of the RStandard pole increases safety when working in live-line environments, reduces the possibility of pole fires caused by electrical tracking to the pole and provides reduced touch and step potential in the event of a system fault. More information on these tests can be found in the 'Testing Overview' section of the Technical Binder or by contacting RS.

How will the RStandard pole perform if exposed to fire?

RStandard utility poles have undergone flammability testing modeled after the California Department of Forestry and Fire Protection "fast moving brush fire test" with only limited surface charring and no structural damage occurring. During this test the poles withstood temperatures in excess of 2,000 °F [1,093 °C] for 12 minutes without igniting. To review the procedure for this test, please refer to the 'Testing Overview' section of the Technical Binder or contact RS. Typically, RStandard poles will combust when exposed to a constant flame source however the composite material will self-extinguish once the flame source is removed.

How well does the RStandard pole resist impact?

RS Technologies' polyurethane resin has been proven through independent testing to perform 120% better than traditional polyester resins in un-notched impacts. This shows that the RStandard pole is significantly stronger and more durable in impact than polyester products.

Can RStandard structures be modeled using PLS®?

Yes. The RStandard specific FRP library files are now available from Power Line Systems for PLS-POLE® and PLS-CADD®. Please contact Power Line Systems to purchase an RStandard FRP key at:

Power Line Systems, Inc.

610 N. Whitney Way, Suite 160

Madison, WI 53705, U.S.A.

Phone: (608) 238-2171

Fax: (608) 238-9241

Email: info@powline.com

Website: www.powerlinesystems.com

Can the RStandard® pole be used in H-frame structures?

Yes. In addition to monopole applications RStandard poles can be used in H-frame and other multi-pole structures.

What happens if a vehicle impacts an RStandard pole?

Typical effects of car glancing or impacts on the RStandard pole can range from simple surface scratching to structural damage of a module(s). The replacement could be limited to the damaged module(s) only, pending inspection and evaluation of the integrity of the remaining modules. The replacement process can be done quickly on-site to reduce costs compared to complete pole replacement while keeping outages to a minimum. Contact RS Technologies for details on module replacement procedures.

3.0 Installation & Accessories

How is the pole embedded in the ground?

RStandard® utility poles are designed for a standard direct embedment depth of 10% of the total pole length plus 2 ft. [0.61 m] for poles over 40 ft. [12.19 m] in length and 10% of the total pole length plus 2.5 ft. [0.76 m] for poles under 40 ft. [12.19 m]. In general RStandard poles are buried the same depth as any other pole for the same application and soil conditions.

Is an RStandard pole climbable?

Yes. RStandard poles are easily climbable using either industry-standard climbing steps or climbing ladders. Various steps from several vendors have been approved for use on RStandard poles. The steps are easily removable and/or can be left in place if desired. For a list of climbing options, please contact RS Customer Service .

Does the RStandard pole require special hardware?

Most standard hardware used by utilities can be used on the RStandard pole, however hardware with teeth or cleats should not be used. Through-bolts can be used and in most cases suitable hardware without teeth or cleats is available from utility hardware distributors. Bolted connections should be backed with a minimum 4 in. x 4 in. [10 cm x 10 cm] 1/4 in. [6.4 mm] thick curved washer.

For most down guy applications, two bolt guying tees and pole bands without through bolts are good solutions. For H-Frame cross bracing hardware contact RS Customer Service to review the range of approved solutions. RS will work with utilities on hardware specification as required. Refer to the Hardware Guidelines section of the Technical Binder for more detailed procedures.

What is the recommended torque when installing through-bolts?

The recommended torque for a 3/4 in. [19 mm] UNC galvanized bolt is between 30 and 50 ft. lbs. [40 to 68 N · m]. As with any hollow pole, care should be taken to ensure over-tightening is avoided. Note that required bolt torque is dependent on multiple factors such as bolt diameter, thread form, surface finish and use of lubricants. Refer to the Hardware Guidelines section of the Technical Binder for more details on hardware connections.

How is hardware grounded with the RStandard pole?

RStandard poles can be grounded in the same manner as wood poles, with the ground wire affixed to the outer surface of the pole using wire clips and self-drilling screws. Another option is to have the ground wire run through the inside of the pole, exiting to the grounding rod through a hole in the base module. Running the ground wire inside the pole can help to prevent copper theft and increase public safety.

How are RStandard poles drilled?

An RStandard pole can be pre-drilled in the factory to each customer's requirements for steps and hardware mounting. Holes can also be easily field-drilled with a carbide tip bit. A twist drill bit, wood, or hole cutter can be used - although non-carbide bits will need frequent sharpening. A variety of carbide drill bit sizes can be ordered from RS or standard hardware stores. A list of recommended suppliers is available upon request should you want to order drill bits directly from our vendors. The use of particle masks, safety goggles/glasses and gloves are recommended when field drilling holes.

Each module comes pre-drilled with the holes for jacking lugs and slots for slip joint hardware. The end of the slot closest to the base of the module is intended as a standard guide for assembly crews to drill through the upper section once the modules have been jacked tightly together and is appropriately marked with a 'DRILL HERE' indicator.

Will drilling holes compromise the pole structure?

RStandard® poles can be easily field-drilled to accept hardware. To maintain the integrity of the pole wall, the maximum typical hole diameter should not exceed 1.25 in. [37 mm]. As well, spacing between holes should be at least six times the diameter of the larger hole. Larger hole diameters can be considered on a case-by-case basis by consulting RS. See the Hole Spacing Conventions section of the RS 'Hardware Guide' in the Technical Binder.

How are the tip and base of the RStandard pole covered?

RStandard poles have a conical top cap to be installed on the top module. Refer to the 'Assembly & Installation Guide' in the Technical Binder for the top cap installation procedure.

Base plates are also sent with each pole and are installed in the field. The base plate, which has a center hole and slots to allow for drainage, is secured to the bottom module with four J-bolts (refer to the 'Assembly & Installation Guide' in the Technical Binder).

What equipment is required when assembling the modules?

While some modules can be hand-carried or rolled when lining them up in preparation for assembly, a boom truck (or other lifting equipment) is recommended for the larger modules. To assemble modules, two 3 ton chain link winches or come-alongs are required for modules 1 through 5 and two 3 ton chain link winches or come-alongs are required for modules larger than a module 5 (i.e.: modules 5/6, 6/7, 8/9 and 10/11), two safety straps or chains for jacking lug securing and four RStandard jacking lugs are required. For more detailed assembly instructions refer to the 'Assembly & Installation Guide' in the Technical Binder.

RStandard poles come in both single module and double module configurations. Double modules, or two of the same sized modules stacked one on top of the other, are used when a stronger, reinforced pole is required for a given application.

For a module slip joint consisting of two single wall modules, use the standard jacking lugs on both sides of the joint. For a joint consisting of a reinforced double wall module and a single wall module, use the special longer throat jacking lugs for the double wall module and the standard jacking lugs for the single wall module. The longer throat of the double module jacking lugs is required when assembling the slip joint involving a double module section to allow for the jacking lug to seat down properly into the jacking lug hole in the module wall. Refer to the 'Assembly & Installation Guide' for jacking lug labelling information.

For a joint consisting of reinforced double wall modules on both sides, use the special longer jacking lugs for both double wall modules.

Can RStandard composite poles be assembled vertically?

Yes. For this type of assembly, the base module should be set and plumbed first. The subsequent modules can then be lifted into place as a single unit or module-by-module, depending on preference. If the pole is assembled vertically, the modules are still required to be "jacked together" using come-alongs, safety straps or chains on the jacking lugs and RStandard jacking lugs as per the Assembly and Installation Guide to ensure the joints are tight.

4.0 Maintenance & Inspection

What types of maintenance and inspection are required?

The RStandard® pole is virtually maintenance free owing, in part to the embedded UV protection that lasts for the life of the pole. The poles are also environmentally inert and impervious to pest damage, eliminating the need for treatments to preserve pole performance. A basic visual inspection for signs of damage can be carried out at the same time that grounding inspections are conducted per the customer's normal inspection cycle. Should you have any specific maintenance or inspection questions, please contact RS.

Can a pole be repaired if damaged?

If a pole sustains damage that a customer is concerned about, they can submit photographs and a detailed description of the damage to RS for review. Our engineering department will make a recommendation as to whether the module and/or pole should be replaced.

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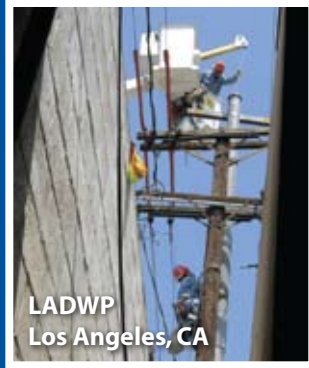
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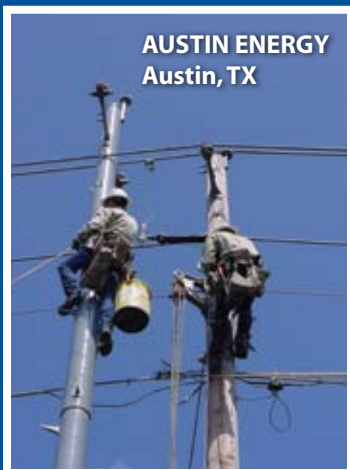
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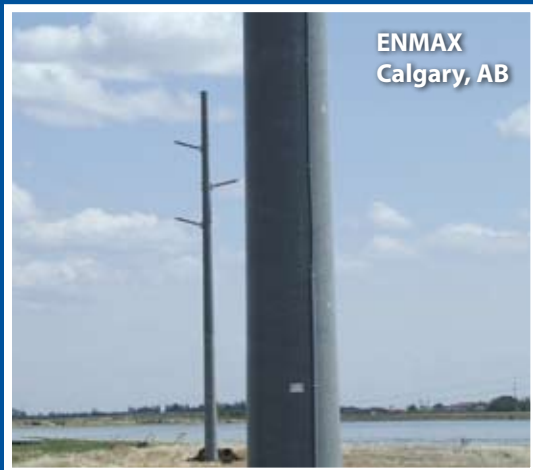
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www.RStandard.com

Email info@grouprsi.com
Toll Free +1 877 219 8002
Phone +1 403 219 8000
Fax +1 403 219 8001

2421 - 37th Avenue NE, Suite 400
Calgary, AB T2E 6Y7

For more information on this product contact:



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