



Radian  
Communication  
Services

NETWORK  
DEPLOYMENT

BREADTH OF  
SOLUTIONS

ORGANIZED  
TO DELIVER

OPERATIONAL  
EXCELLENCE



# 2004

## Revised Product Catalog

**Towers, Wireless Site Accessories  
& Hardware**



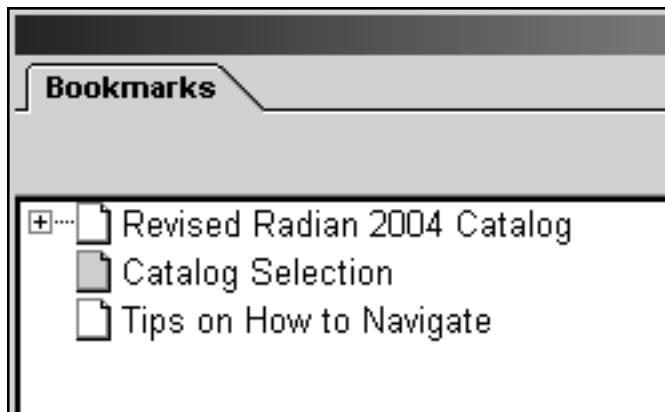
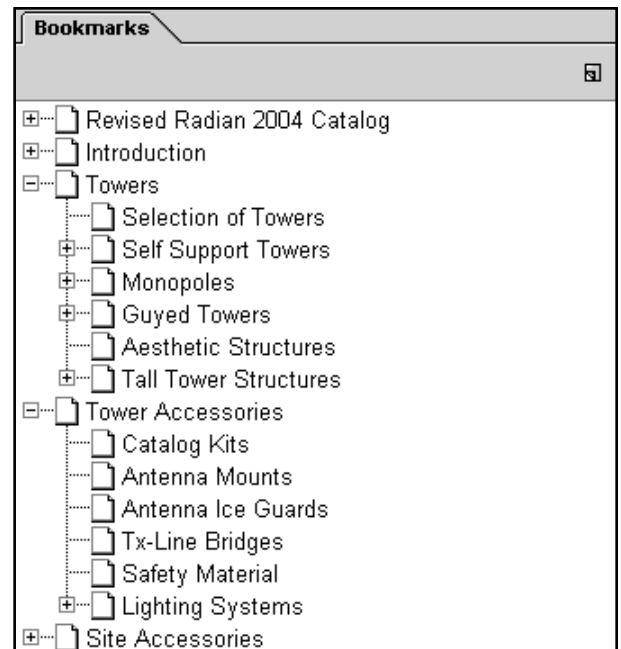
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**RADIAN**

**ROHN™**  
Products



## president's message

Dear Customer,

Whenever a potential customer opens up a catalog such as this, he or she expects that the products and materials offered have been thoroughly tested and refined. At Radian, we have been developing and field testing our products for over 40 years - through our own crews - so we know that they work, and work well.

It is this history that gives us the credibility to stand behind this catalog and provide you - the customer - with the confidence to order from Radian.

Radian is a leading North American infrastructure and network development company. We offer services throughout the entire life of communications and transmission networks from conception to commissioning and continual upgrade and maintenance.

We at Radian are proud of this catalog, please contact us for quality products and outstanding customer service.

Yours truly,

Jack Pulkinen  
President & CEO



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**RADIAN**  the company

**Radian Communication Services**  
is a leading North American  
communications infrastructure  
and network services company.  
Built upon four decades of  
experience, Radian's purpose  
is to provide a cost-effective  
alternative for companies that  
must construct, operate and  
maintain significant  
communications assets.



Radian's current complement of services includes: wireless network design, installation, management and optimization; tower engineering, manufacturing, installation and maintenance; broadcast systems, engineering and installation.

In our early years, Radian's focus was on the design, manufacture, installation and maintenance of towers for the telecommunications and broadcast industries. With the arrival of cellular technology in the 1980s, we expanded our capabilities to meet customer needs for technical experts in microwave transmission and power systems. During this time, Radian also honed its ability to ramp up quickly to meet wireless carrier demands for large-scale network building programs. As a result, Radian has the scale, speed and scope of services to deliver fully integrated field and network deployment solutions. Our tenure in the communications industry, bolstered by the commitment of Onex Corporation, our key shareholder, provides Radian with the power and expertise to deploy the largest infrastructure projects.



In addition, Radian's specialized coordination and management skills, operational scale, and depth of experience allow for rapid, efficient deployment of infrastructure across large numbers of geographically dispersed sites. Radian excels in distributed field deployment, from stand-alone projects to large network roll-outs.

Using its considerable technical knowledge, expertise and highly trained field support technicians, Radian integrates equipment from multiple vendors and provisions live networks. Our knowledge spans all major equipment types. We keep in close contact with the major equipment manufacturers and we incorporate their evolving technologies into our skill set. This enables us to successfully maintain a broad range of services in multiple technology areas.

Radian is focused on quality and safety throughout the organization. Radian is ISO 9001:2000 registered for our Canadian manufacturing facilities and wireless services capabilities.

Our Oakville manufacturing facility holds AISC Quality Certification for Complex Structures. Our safety program has been recognized as "best in class".

In total, Radian offers a single source of network communications and infrastructure technology, providing a complete suite of products and services supporting the network lifecycle.

Radian employs over 600 people supported by over 20 office locations throughout North America. Our focus on serving wireless carriers, broadcasters and wireline carriers has expanded to include OEMs and multiple site operators. Our customers include small to large enterprises, government and public institutions and facilities, telecommunications carriers and service providers.

Radian. Enabling communication.



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## Towers



installed first  
HDTV site in 1998

## Broadcast



first 2,049 ft tower  
built in 1983

2.5G/3G/4G

802.11b/Bluetooth

GSM/TDMA/CDMA

GPRS/UTMS/WCDMA

CDPD/Mobitex

Microwave Radio

Broadband

Fiber Optic

NTSC/HDTV

Radian offers the scope and scale for any communications infrastructure or networking project throughout the complete system lifecycle, and from end to end of the communications network and broadcast chain.

### Project Management

- Scope of Work Definitions
- Product Specifications
- Purchasing
- Logistics
- Test & Acceptance Plans
- Project Team Assembly
- Implementation Schedules
- Project Coordination
- Turnkey Services

### Network and System Hosting

- Ownership
- Operation
- Build-to-suit

### Tower Services

- Engineering, Design & Analysis
- Manufacturing
- Installation
- Inspection & Maintenance
- Emergency Restoration Services
- Co-locate Maximization
- Site Ownership

### Aerial Services

- Supply, Install and Test Antennas & Transmission Lines
- Antenna Orientation
- Antenna & Line Inspection
- Antenna & Line Verification
- Rooftop Installations
- Tenant Improvements
- Co-locate Installations

introduced ROHN  
product line in 2004

project management and  
installation of \$150M  
emergency  
communication system

installed 50,000 line  
switch in 1987

major class A  
international airport  
installation of CAT5/6  
voice/data/video  
network with 300,000  
drops

# Wireless

# Converged services

# Voice Data

national contract  
to maintain over  
2,000 cellular sites

## Wireless Engineering Services

- Network Concept
- Network Configuration
- Network Planning
- System Engineering
- Wireless/Radio Network Design
- RF Engineering
- Microwave Transmission
- Site Qualification & Acquisition
- Equipment Engineering
- Coverage Optimization Surveys
- Propagation Analysis

## Wireless Field Deployment

- Installation
- Testing & Commissioning
- System Operation & Maintenance
- Site Surveys/GPS & Map Studies

## Broadcast Services

- System Engineering & Design
- Equipment Supply
- VSWR Optimization
- Antenna Troubleshooting
- Antenna Repair
- Inspection & Maintenance
- Emergency Restoration Services
- Turnkey Solutions

## Product Catalog

- Towers
- Tower Accessories
- Antenna Mounts & Kits
- Fasteners & Hardware
- Transmission Lines & Accessories
- ROHN Products & Accessories

## network lifecycle

conceptualize

plan

design

fund

deploy

operate

optimize

enhance

maintain



### **Radian has the scale, scope and skill to support the complete network lifecycle.**

Our array of services is available either individually or as complete solutions, enabling our customers to outsource the entire delivery of new communications services.

Radian's breadth of capability means rapid implementation. As a single-source provider, we seamlessly deliver all communications infrastructure and network solutions, regardless of project scope.

As communications technology increases in complexity, our depth of knowledge becomes critically important. As communications converge, our expertise in each technology area enables us to integrate them.

Radian's involvement in a wide spectrum of projects over many years, and our continuing focus on enhancing our capabilities to serve customer needs, gives us the ability to deliver new technologies with confidence.



# □ operational excellence



**Radian provides critical services to the communications industry. Our focus on operational excellence as a key enabler allows us to consistently deliver high-quality, cost-effective deployment solutions.**



Our operational excellence strategies include:

## **The expertise of our people**

Our people have over four decades of experience in the successful completion of thousands of wireless, broadcast, and in-building network projects. As a testament to our expertise, we hold the following certifications: ISO 9001:2000, AISC Quality Certification, and CWB (Canadian Welding Bureau) Certification. We continuously work with equipment manufacturers to update our certification and installation techniques, and support our services with high-caliber, fully trained technicians. The breadth and depth of our technical expertise can only be achieved with unrelenting commitment to the highest standards.

## **Being close to customers**

Being close to our customers to gain an intimate understanding of their specific and unique requirements is a cornerstone of the Radian service offering. Our people work together with our customers, forming a single team and becoming an extension of their business, in order to complete each project on time and on budget.

## **Using information technology to provide visibility**

Radian has implemented the J.D. Edwards OneWorld system to effectively manage our operations, enhance our customer relationships and provide world-class levels of support. The system is Web-enabled and allows our customers complete visibility of their projects to track progress and performance at any time.

## **Leveraging unique financial capability**

Radian is unique in our ability to offer our customers financial solutions to help build their networks and systems. We can provide solutions ranging from vendor financing through to complete turnkey packages, whereby our customers lease the system while ownership and operation resides with Radian. This capability can be applied to build-to-suit wireless network deployment and managed site services for broadcast systems.

## **Using meticulous project management**

Timely delivery of major, geographically distributed infrastructure projects depends on a disciplined, rigorous project management process. From initial planning, design and construction, through to deployment, operation and maintenance, Radian applies project management best practices. Radian's project management process has been honed through years of experience in thousands of projects.

# RADIANT north american hubs





## Selection of Towers



### SELECTION OF TOWERS

When we think of broadcast or cellular systems, we often think of the costly antennas and transmission methods required to provide the coverage to meet the network demands. However, one key component that is often overlooked is the tower structure required to support those antenna systems at the requisite height for proper coverage. In fact, the tower structure is just as important as the antenna and other transmission equipment. One cannot be without the other in most environments.

Communication towers are a complex feat of structural engineering, which must take into account everything from soil and environmental conditions, steel types, location and land area, to proposed and future antenna loading. All of these factors must be taken into account to produce a structurally sound tower that will fulfill the needs of the customer both today and in the future, as requirements change. Poor tower design can often lead to catastrophic structural failure and the loss of thousands of dollars in potential revenue.

When designing a tower, the first question that needs to be answered is: "Does the customer want the lowest cost solution, or the best investment?" Most often, both requirements can be satisfied with the same solution. When it is not possible to satisfy both conditions, the best solution is developed through discussions with the client.

### TOWER APPLICATIONS

#### Wireless

In the wireless market (cellular, PCS, paging, etc.), towers are used to support the directional downtilt and other antennas typically used in this type of application. Because wireless technologies use higher frequency bands to transmit data, the wavelengths are considerably shorter than in a TV or radio broadcast environment. As such, the towers for wireless applications are much shorter than in broadcast. Wireless towers can be self-supporting, monopole, tripole or guyed structures, typically no higher than 400 ft.

#### Broadcast

Radio and television broadcasters are required to transmit their signal over a very large coverage area. Because they operate at frequencies much lower than wireless technologies, the wavelengths are much longer, allowing the signal to travel greater distances. In order to maximize signal transmissions, broadcast towers are usually very high, or placed in locations that have a very high elevation. Broadcast towers can be either self-supporting (up to 1,000 ft.) or guyed structures, up to 2,000 ft. in height.

## Selection of Towers



**Wireless Tower Application**



**Monopole in a Wireless Application**



**Tripole**

### SELF-SUPPORTING TOWERS

A self-supporting tower is a freestanding structure that requires less land than a guyed tower, and can accommodate a variety of antennas. Radian offers a wide range of self-supporting towers in all-welded and knockdown configurations. Radian's versatile self-supporting towers can be used for a variety of applications. Self-supporting towers are designed to withstand worst-case weather scenarios for the site in consideration, and the combined effects of environmental loads (wind, ice and earthquakes) and antenna weight on the towers.

#### Latticed

Often because of restrictive real estate locations, a self-supporting tower is the only alternative, particularly since the footprint is typically 10% of its actual height (e.g., a 400 ft. tower would require only 40 ft. at its base). However, it is important to note that all tower sites are transmission facilities, and require on-site equipment in order to power, generate and transmit the data signals. This is typically housed in a shelter at the base of the tower. Therefore, real estate considerations need to accommodate the combined footprint of the tower and shelter, plus a perimeter security fence. Latticed self-supporting towers are used in both wireless (up to 400 ft.) and broadcast applications (up to 1,000 ft.).

#### Monopoles

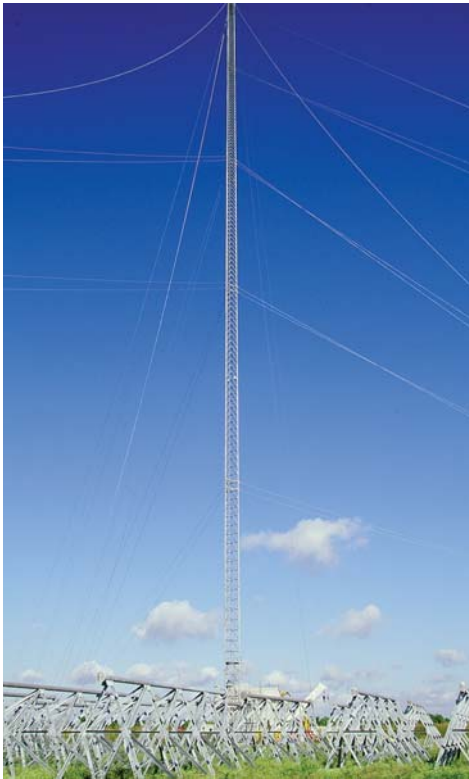
Further real estate restrictions or aesthetic considerations normally dictate the use of monopole or latticed poles (tripoles). These structures have a relatively small footprint and face width in comparison to standard self-supporting and guyed towers. For example, a 140 ft. monopole structure may require only 3 to 4 square feet of land area (plus equipment shelter). Depending on the loading and design requirements (wind and ice), and the governing municipal laws, designers may opt for one of these towers. These towers are typically used for wireless applications.

There are two types of monopole designs: tapered pole and flange pole. In a tapered pole, the top of each pole section is narrower than the bottom, allowing the sections to be slip-fitted together. The flange pole has a steel flange around the outer edge of each end of the pole section. The sections are placed on top of each other and bolts are fitted through the flanges to hold the structure together. Monopoles can be used in wireless applications up to 200 ft.-high in a typical environment.

#### Tripole

Tripole designs are simply three-sided towers of equal face width, supported by the three legs that make up the corners of the tower. There are no guys to support the structure; rather, the three legs are anchored into the ground and support the entire structure. Unlike most self-supporting latticed towers, the width of a tripole tower remains constant along its entire length, versus a standard self-support structure, which is wider at the bottom. It utilizes the same footprint as a monopole, while its open structure allows it to blend more easily with the surroundings. A tripole can be used in wireless applications up to 300 ft. in height, in cases where there is little real estate available at the base.

## Selection of Towers



**Guyed Tower**

### GUYED TOWERS

A guyed tower is composed of a relatively slender mast supported by steel cables (guys) at the necessary levels. This composition makes the guyed towers versatile and will accommodate a variety of applications. Radian offers a variety of guyed towers in both all-welded and knock-down configurations. The towers are commonly three-sided equilateral triangular masts. However, four-sided masts are easily furnished. Radian's tower types cover all possible height requirements.

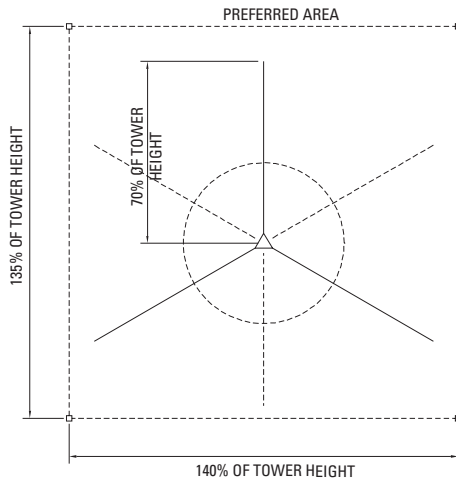
In some cases, for broadcast antennas, the face width will be constrained by the need to optimize radiation patterns from panel or side-mounted antennas. These factors may dictate the size of the tower face width.

Like self-supporting towers, guyed towers are designed and built to withstand wind and ice loads. The combined effects of wind and antenna weight will dictate the overall design and structural requirements of the tower.

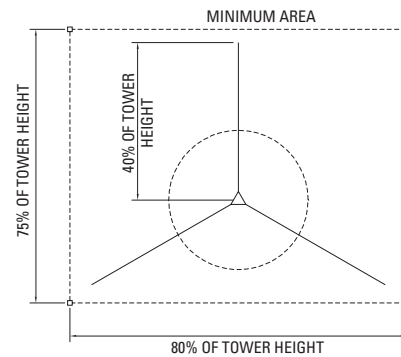
Because of the necessary guy wires to support the tower, a large amount of real estate is required, typically 60-80% of the structure's height. The guy radius required to support the tower loading is determined by the structural analysis, and takes into account the environmental and structural factors such as wind, ice, twist and sway. Guyed towers can be used in wireless (up to 400 ft.) and broadcast (up to 2,000 ft.) applications.

## Selection of Towers

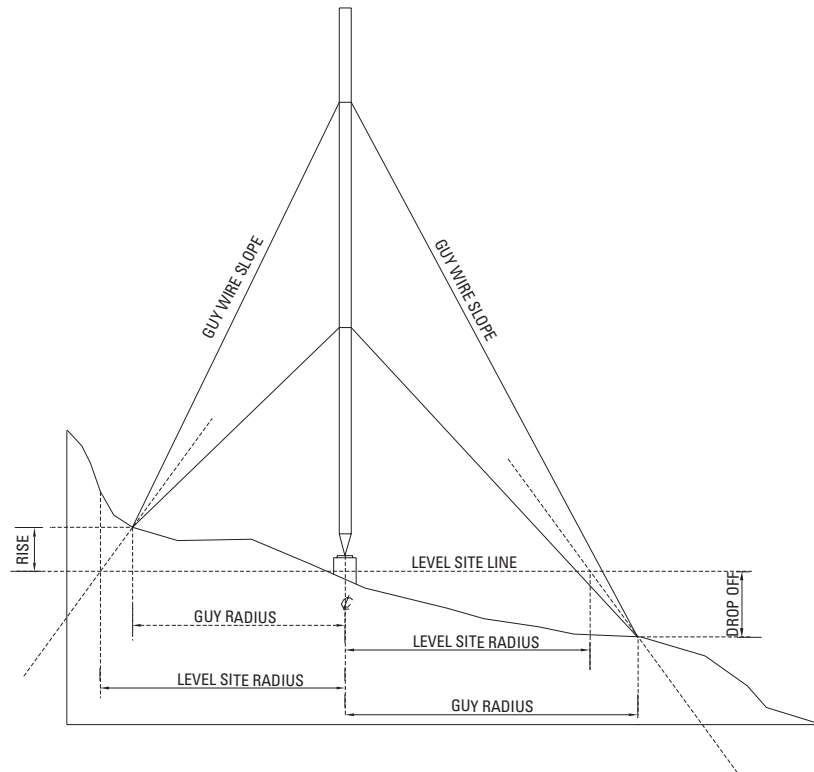
As with any tower, the ideal location would be a site on level ground. However, uneven site terrain is not uncommon. In cases where the anchor elevation is higher or lower than the base elevation, the amount of land required will be reduced or increased proportionately to the grade slope, and the uneven terrain must be accounted for in the design of the tower.



**Preferred Area**



**Minimum Area**



## Selection of Towers



### DESIGN CONSIDERATIONS

Let us take a brief snapshot of the specific considerations required in any tower development and implementation. These considerations are not “optional” or “nice-to-have”. They are critical to the structural integrity of the tower and to public safety, and are calculated to allow designers to build the structure to the design conditions (wind, ice and/or seismic loads) at the particular location of the tower.

All communications towers are designed and installed to meet the customer’s requirements as well as strict local and/or national standards and building codes. In the United States, tower designs usually conform to the latest ANSI/TIA/EIA-222, “Structural Standards for Steel Antenna Towers and Antenna Supporting Structures”. In Canada, tower designs must conform to CSA Standard S37, “Antennas, Towers, and Antenna-Supporting Structures”. Design parameters include reference wind speed or pressure. Radial ice thickness, and twist and tilt requirements are required to achieve optimum tower design.

### Site Selection

When selecting a tower, it is of primary importance to choose a site location that will satisfy the needs of the propagation study conducted by the RF engineering team. This will determine the height of the tower needed to provide optimum coverage in that area. As well, antenna loads will also determine the size of the tower required.

### Environmental Factors

Many environmental factors contribute to the design of a tower structure. Wind, ice and earthquake loads are some of these factors. However, the two main influences on tower design are wind and ice. Both values are dependent upon site location (e.g., ice is not a consideration in warm climates). National standards have wind and ice maps as a guideline; however, more accurate site-specific values can be requested and may be required for exposed locations.

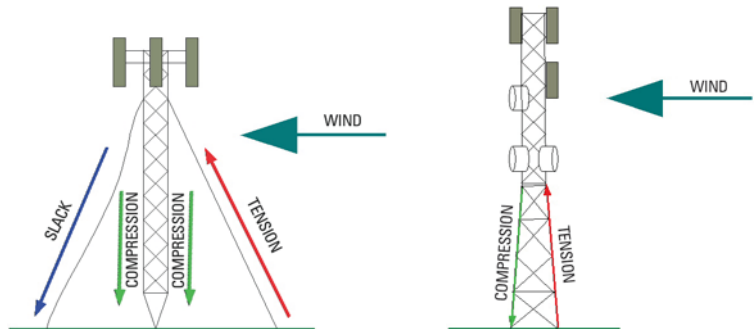
### Wind

One of the most important considerations when designing a tower is the impact that natural elements will have on the tower itself. Perhaps the largest of these considerations is wind. Remember, the higher the altitude, the stronger the wind.

As the force of the wind hits the face of the tower or its attachments, it places a stress on the structure. This force causes tension in the supporting legs or guys on the side affected by the wind, effectively stretching them taut, while creating compression on the legs on the leeward side (or reducing the tension of the guys on a guyed tower) as the tower deflects (bends or gives) to the wind. Properly designed structures will take these factors into account, and allow for the structure to return to its original position when the wind subsides.



## Selection of Towers



Examples of tension and compression effects on a tower as a result of wind force.

Knowledge of the types of antennas and antenna placement on the structure is also a key consideration when designing for wind resistance. The weight of a particular antenna combined with winds from a particular angle may cause the antenna to act as a sail, causing the tower to twist and sway with the force of the wind. This is known as deflection. Depending on the type of antenna to be mounted, designers will engineer the tower to meet maximum allowable deflection requirements.

Depending on the usage requirements of the tower, performance requirements may necessitate greater strength than is required by the standards.

### Ice

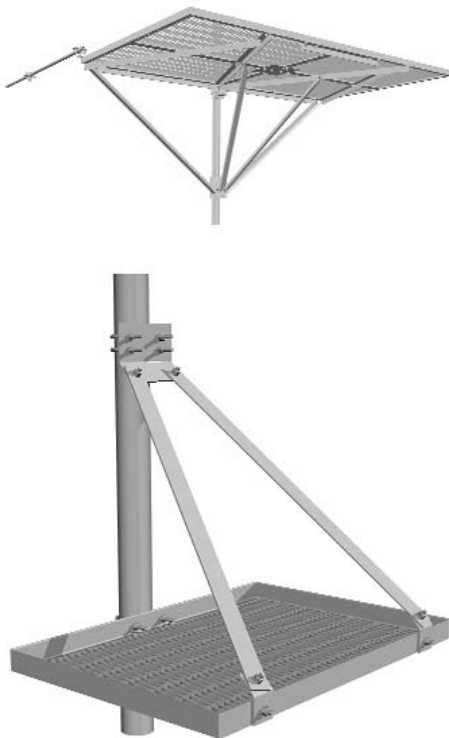
In colder climates, ice is a primary consideration for tower design. The weight of the ice accumulated on the attached antennas, radial ice on the tower structure itself, and the additional area resulting from the accumulated ice on the structure, can result in overloading and structural failure of the tower or antenna mounts.

Another factor that can result from ice buildup is falling ice. As the air warms or ice becomes too heavy on a particular area, it may break off and fall to the ground, often striking antennas or waveguide cabling, causing serious damage or outright destruction. This will inevitably lead to costly repairs and lost revenues due to loss of service from that tower.

In order to prevent ice damage, it is common for ice guards to be placed just above lower antennas. The ice guard causes the ice chunk to break, thus protecting the critical device below.

### Tower Leg Capacity (Self-Supporting)

In terms of self-supporting tower design, the wisest choice a designer can make is an extra investment in tower leg capacity. Since the tower legs support the entire structure, adding extra capacity from the outset will eliminate costly tower modifications in the future, should additional loading be imposed upon the tower through the addition of extra antennas and transmission lines. Horizontal and diagonal structural members can be replaced or modified with relative ease; a tower leg, however, can seldom be changed once in place.



Examples of Radian standard ice guards for microwave and other antennas. (These are placed above the antenna to deflect falling ice chunks.)

## Selection of Towers



### Loading Considerations

When designers refer to the loading on a tower structure, they are referring to everything supported by the structure, including transmission lines, antennas, antenna support mounts, lighting systems, ladders and fall-arresting systems, platforms, ice guards, support members, torsion resistors and other items, in addition to the initial tower members and components.

A tower purchaser must specify the quantities, type and levels of all present and future antennas that the tower will be expected to support. While the antenna types may not be known at the time of bidding, the usual arrangement is for 9 or 12 antennas to be mounted on a mounting frame at each corner of the tower.

It is imperative that antenna loads be considered during this portion of the design phase for this type of antenna placement. The wind load of an antenna can be determined by the equation:  $C_A A_C$ , where  $C_A$  is the drag co-efficient of the antenna appropriate for the antenna shape, while  $A_C$  represents the projected surface area of the proposed antenna. These values can usually be determined by wind co-efficients provided by standards or by wind-tunnel test data supplied by the antenna manufacturers. Designers must also account for the antenna mount, and include this in the calculations. Any underestimation in these areas will result in an unusable tower for the addition of future antennas.

Below is a guideline for generic wind-exposed areas where  $C_A A_C$  is to be used when missing the antenna mount information:

<b>9 antennas mounted on 3 sector frames:</b>	<b>70 sq. ft.</b>
<b>12 antennas mounted on 3 sector frames:</b>	<b>85 sq. ft.</b>
<b>9 antennas mounted on a rotating cell mount:</b>	<b>90 sq. ft.</b>
<b>12 antennas mounted on a rotating cell mount:</b>	<b>100 sq. ft.</b>

Transmission lines can place a significant load on a structure, since they must run from each antenna on the mast, down to the equipment shelter on the ground. Depending on the type of transmission line, this can result in several extra tons of loading applied to the structure. Proper placement or arrangement of the transmission lines can reduce the effect of loading. The transmission line support mounts determine positioning of transmission lines on the tower.

In addition, when ice forms around lines that are closely spaced, it can form a block that fills the gap between the lines. Designers consider this situation equal to a flat area that will attract a higher loading than a round area of a single line. Regardless of placement, transmission line shielding will be considered for every wind direction considered in the design calculations.

### Foundations

Even the best tower will fail if the foundations on which it stands have not been designed to meet the specific soil or rock conditions at the tower site. In designing the best possible foundation system for each intended tower site, a professional geo-technical engineer should perform a soil investigation. The soil condition report will include information such as: allowable bearing pressure, compression strength, water table level, soil density, depth of frost penetration, corrosive nature of the soil, and tension/compression capacities for pilings.

Rock site condition reports should include: type and condition of rock, depth to sound rock, density, allowable bearing pressure, shear strength, water table level, recommended anchoring procedure and rock quality designation (RQD).

## Selection of Towers



### Twist and Sway

Twist and sway, or twist and tilt, refers to the amount of structural movement due to wind or seismic events allowable in order to maintain structural stability and safety. These requirements will govern the design of the tower. Depending on the antenna size and frequency, the maximum twist and sway limits should be chosen.

In a guyed tower, the positioning and size of the guys and guy resistors will affect the amount of twist and sway in the tower. The size and position of the guy wires will have a direct effect on the amount of tilt in the tower. The torsion resistors will dictate the amount of twist.

Generally, a tower with a wider face width is “stiffer”, and therefore, requires fewer guy levels than one with a narrower cross-section. However, there is a tradeoff in the initial tensions and guy sizes required in a larger tower versus the number of guy levels and the face width. A good design will optimize the tradeoffs, so the appropriate degree of stiffness can be achieved without causing the guys to be excessively large.

### MANUFACTURING CONSIDERATIONS

#### Structural Steel

Of critical importance is the use of the correct grade(s) of structural steel for specific applications within the structure. ASTM Standards list many types and grades of structural steel; however, not all are suitable for tower use. In fact, geographic location may play a determining factor as to the type of steel that is used in manufacturing.

Steel can become brittle at low temperatures, depending on the chemical composition and method of manufacture of the steel. This brittleness can cause the steel to fracture as loads are placed on the tower, causing structural failure. Many structural steels are intended for use in buildings that are heated, hence eliminating the concern for brittle fracture. Towers must be designed for and operate at the lowest temperatures occurring at the site.

#### Finish

The finish of the tower structure is an important design consideration in itself, with specific environmental and aviation compliance regulations. Painting of the towers must comply with FAA regulations, in the United States, and Transport Canada (Aviation) Standard TP 382, in Canada.

Many towers are also protected against corrosion by a hot-dip galvanizing process. This process is also regulated in accordance with ASTM A123/A153 and CSA Standard G164 to ensure quality standards. Galvanizing tower members and components can protect them against corrosion for up to 25 years in coastal locations, and 50 years in urban locations.

#### Grounding

Proper grounding of a tower structure is important in order to eliminate damage or destruction from lightning strikes, and to ensure proper operation of the attached antennas. There are two levels of grounds: primary and secondary. The primary ground provides a direct electrical path from the structure to the earth or other conducting body for the safe discharging of lightning strikes, high voltage or static. Secondary ground provides the conducting connection for any attached apparatus, such as antennas to the structure. For safety's sake, the structure must also be grounded during installation.





## Self-Supporting Structures



### General Information

A self-supporting tower is a freestanding structure that requires less land than a guyed tower and can accommodate a larger quantity and size of antennas. Radian offers a wide range of self-supporting towers in all-welded and knock-down configurations. All of Radian's standard self-supporting towers are three-sided structures, which are lighter and have fewer parts, thus making them more economical to ship and erect. However, if required, four-sided towers can easily be furnished. With heights up to 400 ft. (122 m), Radian's versatile self-supporting towers can be used for a variety of applications.

### Optional Items

The RS series of self-supporting towers are typically supplied complete with anchor bolts, base stubs, sections, legs, web members, bolts, external or internal climbing ladder, or step bolts and installation drawings. The following items can be supplied when specified by the customer and/or designer to provide a complete structure:

- Grounding kit
- Factory painting
- Antenna mounts and supports
- Fall-arresting devices and accessories
- Transmission line bridge
- Antennas and transmission lines as specified by the customer
- Antenna ice guards
- Lighting kit
- Transmission line support and brackets
- Cable ladder to support transmission lines
- Interchange, work, and antenna platforms
- Anti-climb systems

### Engineering

- Towers are designed in accordance with the Standard TIA/EIA-222 or CSA Standard S37 latest issue.
- Towers can be designed for compliance with other standards and specifications as required.
- Towers are designed for the specified wind and ice loading conditions applicable to the particular site.
- Leg and web members are selected from standard sizes to carry the maximum load that the member will need to bear.
- Foundations are selected and designed to suit the conditions reported at the site.
- Towers are designed to applicable specifications using our propriety in-house self-support computer program.

## Self-Supporting Structures



### Manufactured & Purchased Materials

- All structural steel conforms to ASTM A6, CSA Standard G40.20, G40.21, and other standards as applicable.
- All welding conforms to the requirements of the American Welding Society D1.1 and CSA Standard W59.
- All material is hot-dip galvanized after fabrication to ASTM Standard A123 and CSA Standard G164.
- All structural bolts conform to ASTM Standard A325 or ANSI/ASME B18.2.1 Grade 5 and are galvanized to ASTM Standard A153.
- All concrete conforms to the Standard ACI 318 or CSA Standards A23.1 to A23.3.
- All other purchased parts are in accordance with applicable standards.
- Radian manufacturing quality meets or exceeds the requirements of ISO 9001:2000, AISC Quality Certification Conventional Steel Structures and Complex Steel Building Structures, and the Canadian Standards Association.
- All welding is performed in our CWB-certified facilities.

### Available Series

- RS27
- RS70
- RS75
- Tripole

## Self-Supporting Structures – RS27



Typical RS27 Profile

### RS27 Series Tower

The RS27 series self-supporting tower is an equilateral triangular, all-welded structure. This series utilizes standard sections from three other Radian series towers: RG24, RG33, and RG42. Each two adjoining sections are joined together by splice tube connections. This series' flexible design gives it the ability to have many different profiles with three choices for top section nominal face width. They are: 24" (0.61 m), 33" (0.84 m) and 42" (1.07 m). This series is capable for applications up to 150 ft. (45 m).

### Applications

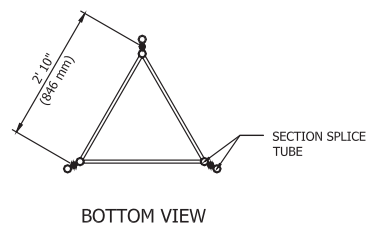
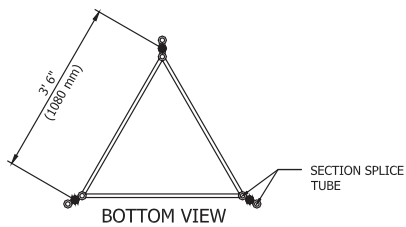
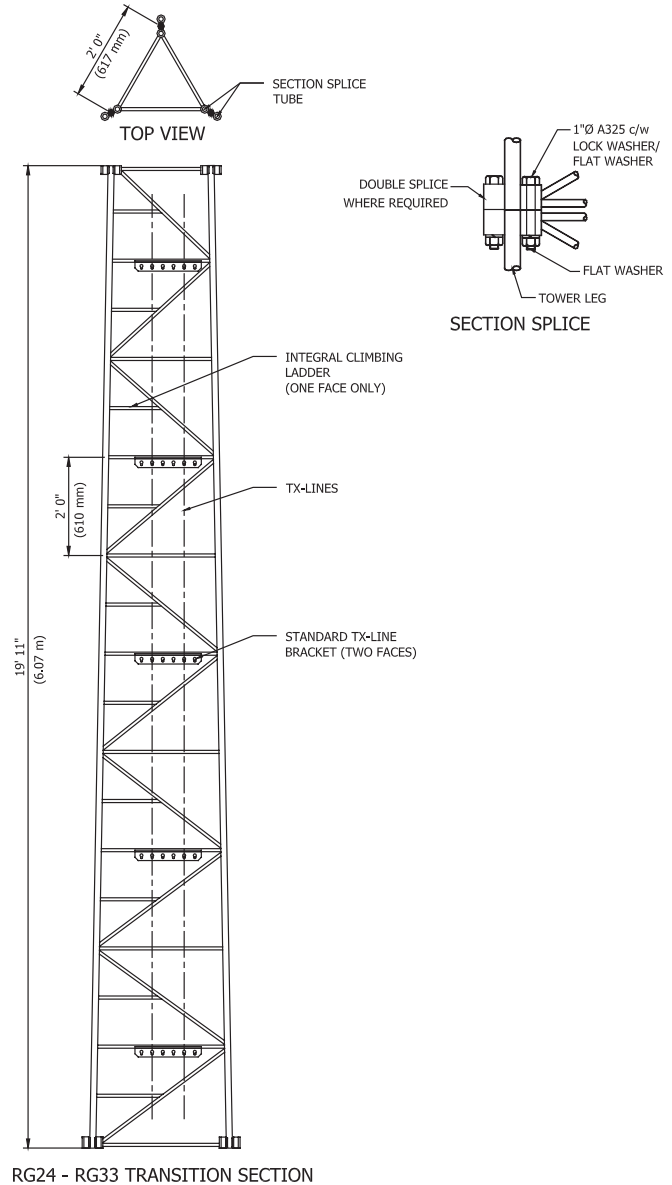
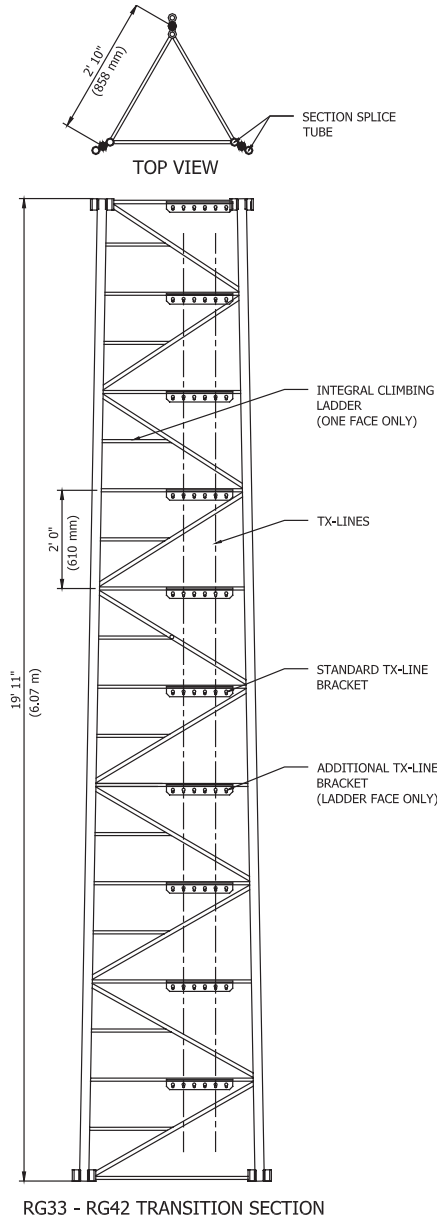
- UHF, VHF, YAGI and reflector-type antennas
- Small microwave antenna applications, depending on height and environmental loading conditions
- Cellular and PCS systems
- Studio to transmitter links
- TV surveillance camera support
- Roof or ground mounted to suit site requirements
- Combination of the above antennas or other loading applications within the tower capacity range

### Features

- The RS27 tower is a standard pre-engineered series.
- Individual designs created from standard sections, to meet customers' specifications and individual site wind and ice conditions.
- Tower legs, diagonals and horizontals are solid rounds, factory-welded to form rigid, equilateral triangular sections. Special jigs are employed to ensure uniformity of the sections.
- Leg members are 1 1/4" (32 mm) to 3" (76 mm) in diameter, solid round bars. Diagonal members are 5/8" (16 mm) to 1 1/4" (32 mm) solid round bars and horizontal members are 3/4" (19 mm) to 7/8" (22 mm) solid round bars.
- Material grades are as follows: diameters less than or equal to 1 3/8" (35 mm) are 44 ksi (300 MPa) yield steel and diameters greater than or equal to 1 1/2" (38 mm) are 50 ksi (350 MPa) yield steel.
- Factory-welded integral horizontal rungs provided on one face for climbing and for the support of a safety climb device, if required.
- Transmission line supports are located every 2 ft. (610 mm) on ladder face and every 4 ft. (1,220 mm) on the remaining two faces for RG33 and RG42 series sections. Transmission line supports are located every 30" (760 mm) on two faces for RG24 series sections. All section supports accommodate snap-on and/or bolt-on hangers.
- Any RS27 section can serve as the bottom section, and can be anchored to the base foundation with anchor bolts.
- Antenna mounts are easily U-bolted to sections at the desired levels and positions.
- Experienced tower crews can quickly erect this series of tower.

## Self-Supporting Structures – RS27

### RS27 Series



## Self-Supporting Structures – RS70



Typical RS70 Profile

### RS70 Series Tower

The RS70 series self-supporting tower is an equilateral triangular, site-assembled, angle-leg, knock-down structure. Its flexible design gives it the ability to have four different top section nominal face widths. They are: 28" (0.7 m), 52" (1.3 m), 76" (1.9 m) and 100" (2.5 m). This series is capable for applications up to 400 ft. (122 m).

### Applications

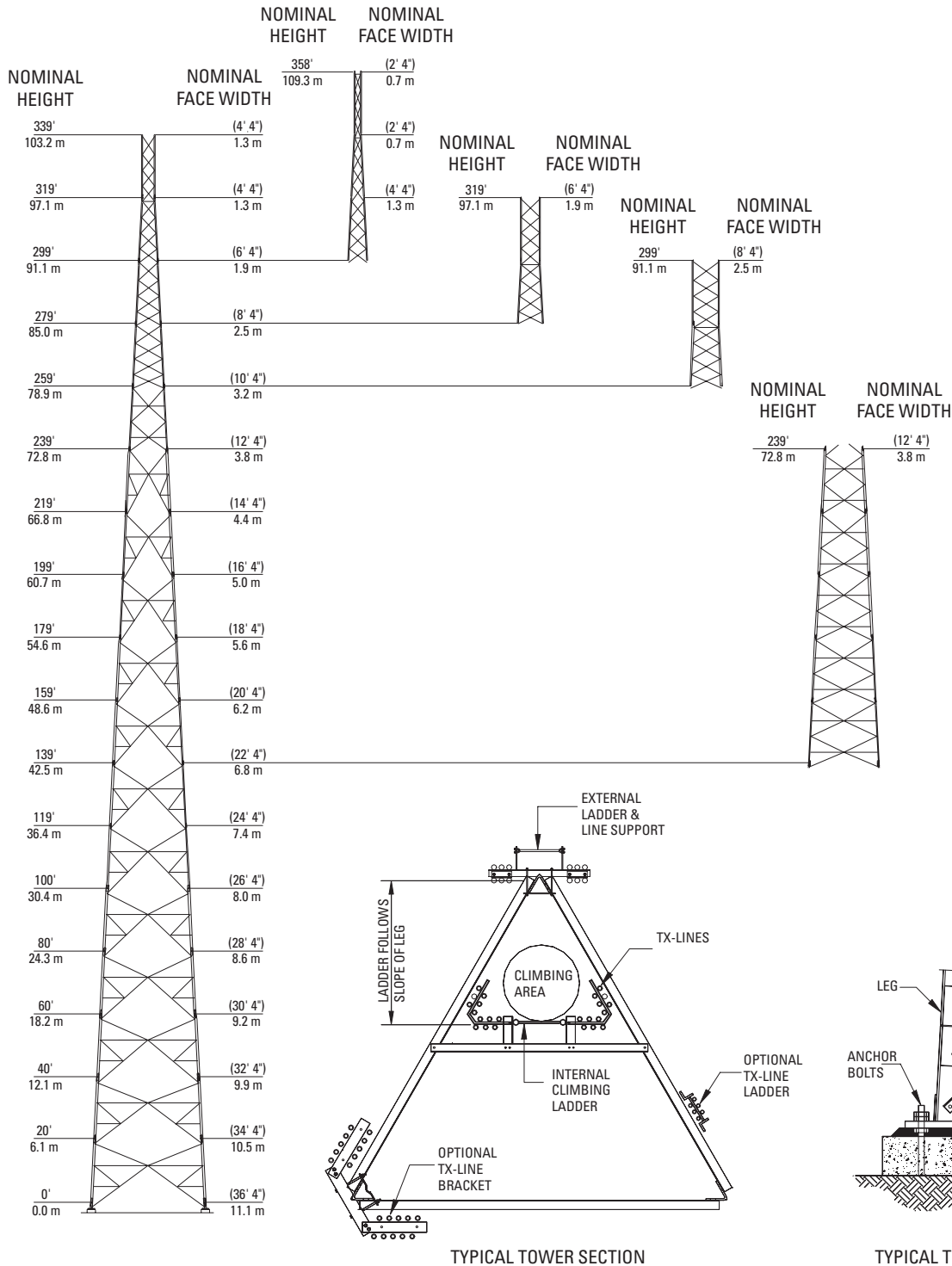
- UHF, VHF, YAGI and reflector-type antennas
- Microwave antenna applications up to 12 ft. (3.7 m) solid, depending on height and environmental loading conditions
- Cellular and PCS systems
- Studio to transmitter links
- TV surveillance camera support
- Roof or ground mounted to suit site requirements
- Combination of the above antennas or other loading applications within the tower capacity range

### Features

- The RS70 series tower is a standard pre-engineered series that utilizes an open bracing pattern to provide an economical design while meeting the most stringent strength requirements.
- Individual towers are designed to meet customers' specifications and individual site wind and ice conditions.
- Tower legs are solid angle constructions.
- Leg members are structural angles roll-formed to 60°.
- Leg sizes range from 4" x 4" x 1/4" (102 x 102 x 6 mm) to L8" x 8" x 1 1/8" (203 x 203 x 29 mm) of 50 ksi (350 MPa) steel.
- Tower web members are bolted 90° angles.
- Base stubs adapt standard base section legs to the foundation anchor bolts.
- There is an internal Y-mounted climbing ladder that can accommodate transmission lines supporting brackets.
- Meets climbing requirements of EIA-222 and CSA-S37.
- There are internal and other transmission supports to suit a variety of configurations.
- Straight sections are capable of supporting either leg- or face-mounted antennas.
- Utilizes a wide variety of Radian standard antenna mount hardware.
- Knock-down configuration minimizes shipping costs.
- Minimal parts per section enable experienced tower crews to quickly erect this series of tower.

## Self-Supporting Structures – RS70

### RS70 Series Tower



## Self-Supporting Structures – RS75

### RS75 Series Tower

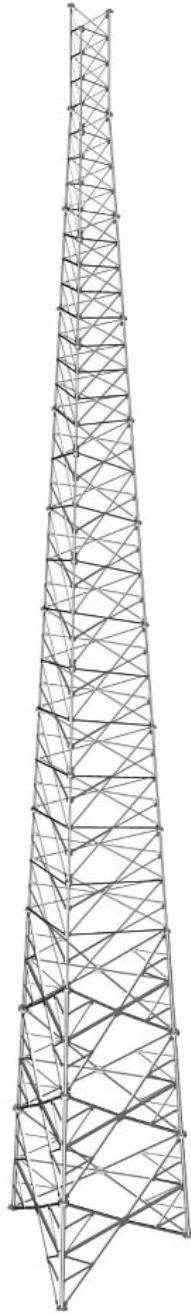
The RS75 series self-supporting tower is an equilateral triangular, site-assembled, knock-down structure. Its flexible design gives it the ability to have a top section nominal face width of 52" (1.3 m), 75" (1.9 m) or 98" (2.5 m). This series is capable for applications up to 500 ft. (150 m).

### Applications

- Cellular and PCS systems
- Microwave applications (High performance and standard, as well as parabolic and grid antennas can be supported depending on height and loading conditions.)
- Supporting UHF, VHF, YAGI and reflector-type antennas
- Studio to transmitter links
- For support of TV and FM broadcast antennas
- Roof or ground mounted to suit site requirements
- Various other antenna types, sizes, and loading conditions can be accommodated utilizing suitable sections of the tower.

### Features

- The RS75 series tower is a standard Radian configuration.
- Individual designs created to meet customers' specifications and site-specific wind and ice conditions.
- Tower legs are solid round members.
- The tower has a large variety of leg sizes, which allow the structure to be used as a tripole, or for applications where a small footprint is required.
- All tower main diagonal members are double-bolted 90° angles.
- All structural members conform to ASTM Standards, A572 – 50 ksi (350 MPa), or CSA Standard G40.21 Type 300W – 44ksi (300 MPa).
- There is an internal mounted climbing ladder and transmission line supports.
- Meets climbing requirements of CSA-S37 and EIA-222.
- Optional external face-mounted transmission line ladder or leg-mounted transmission line brackets are available.
- Straight sections are capable of supporting either leg- or face-mounted antenna.
- Tapered sections are able to support antenna mounts at appropriate locations.
- Utilizes a wide variety of Radian standard antenna mount hardware.
- Knock-down configuration minimizes shipping costs.

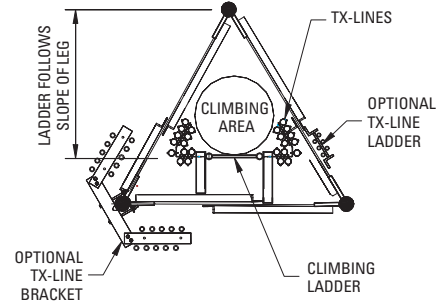
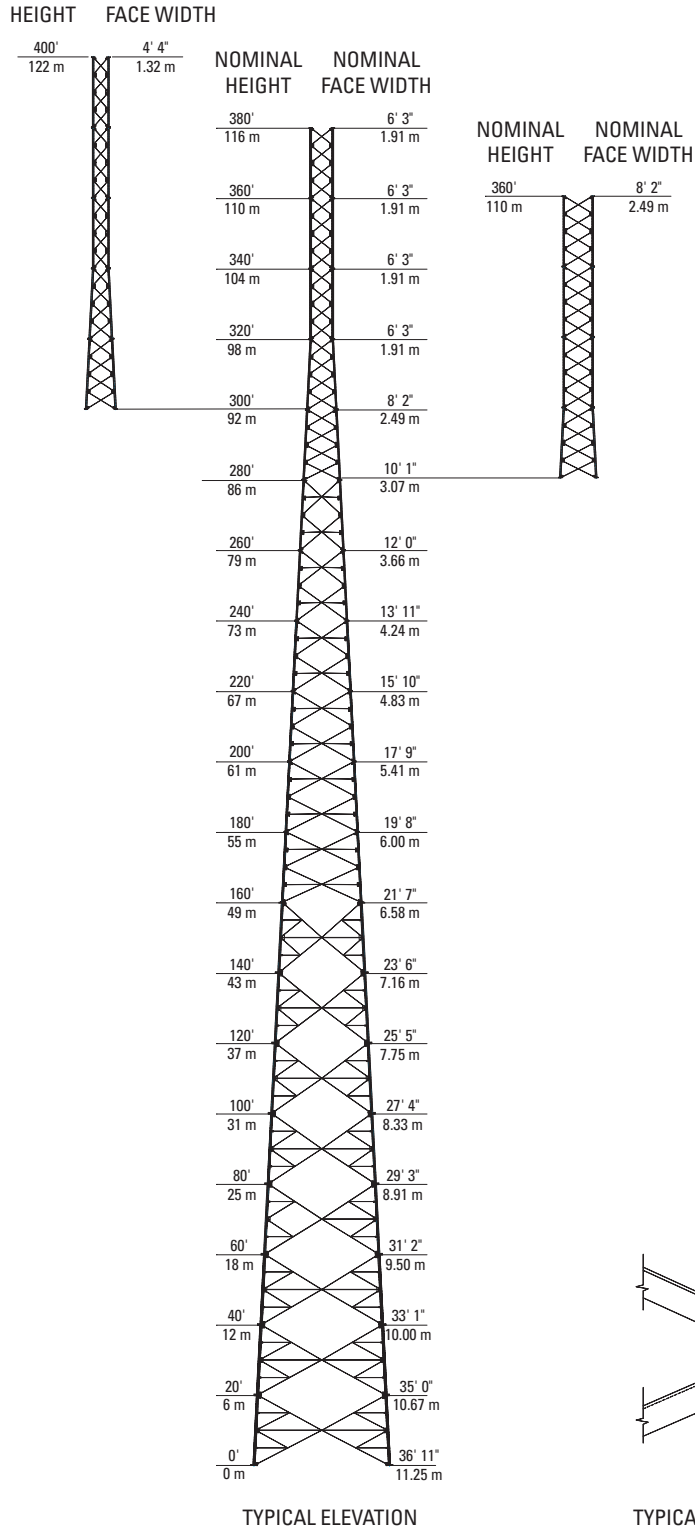


Typical RS75 Profile

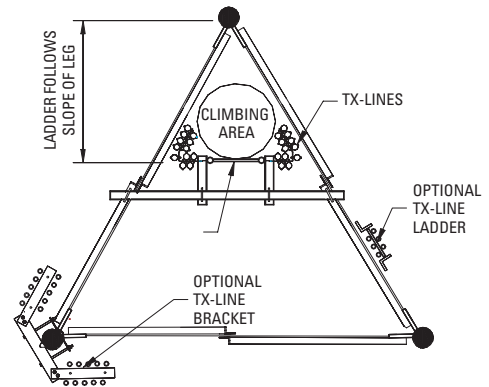


## Self-Supporting Structures – RS75

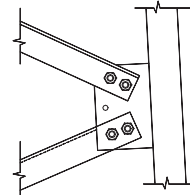
### RS75 Series Tower



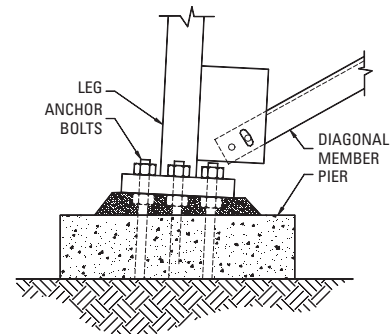
TOP SECTION OF TOWER



LOWER SECTION OF TOWER



TYPICAL CONNECTION



BASE DETAIL



## Self-Supporting Structures – Tripole



Typical Tripole Profile

### Tripole Series

The lattice Tripole series is an aesthetically pleasing, economical and versatile alternative to a monopole. The series is available in nominal face widths of 52" (1.3 m), 75" (1.9 m), 98" (2.5 m) and 144" (3.6 m). This series is capable for applications up to 300 ft. (91 m).

### Applications

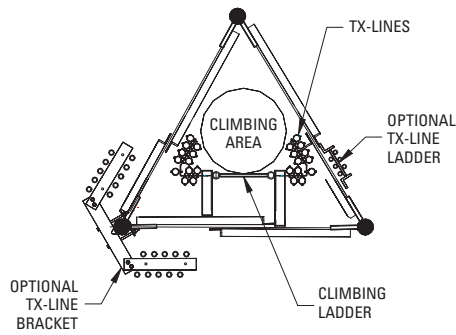
- Cellular and PCS systems
- Microwave applications (High performance and standard, as well as parabolic and grid antennas can be supported depending on height and loading conditions.)
- Supporting UHF, VHF, YAGI and reflector-type antennas
- Studio to transmitter links
- Roof or ground mounted to suit site requirements
- Various other antenna types, sizes, and loading conditions can be accommodated utilizing suitable sections of the tower.

### Features

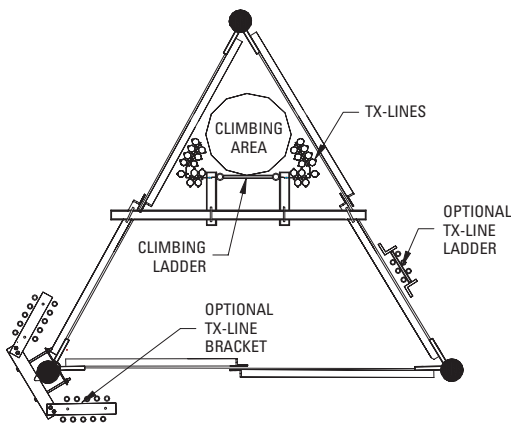
- The Tripole series tower is a standard Radian configuration with section heights of 10 ft. (3 m), 20 ft. (6.07 m) and 30 ft. (9.1 m) (for 12' face width series only).
- This series has small footprint, low profile and greater twist/tilt performance, while utilizing the same space as monopole.
- Individual designs created to meet customers' specifications and site-specific wind and ice conditions.
- Tripole legs are large diameter pipes or solid rounds.
- The structure has a large variety of leg sizes, which allow the structure to be used for different applications.
- All main diagonal members are double-bolted 90° angles.
- All structural members conform to ASTM Standards, A572 – 50 ksi (350 MPa), or CSA Standard G40.21 Type 300W – 44 ksi (300 MPa).
- There is an internal mounted climbing ladder and transmission line support.
- Meets climbing requirements of CSA-S37 and EIA-222.
- Optional external face-mounted transmission line ladders or leg-mounted transmission line brackets are available.
- Sections capable of supporting either leg- or face-mounted antennas.
- Utilizes a wide variety of Radian standard antenna mount hardware.
- Knock-down configuration minimizes shipping costs.

## Self-Supporting Structures – Tripole

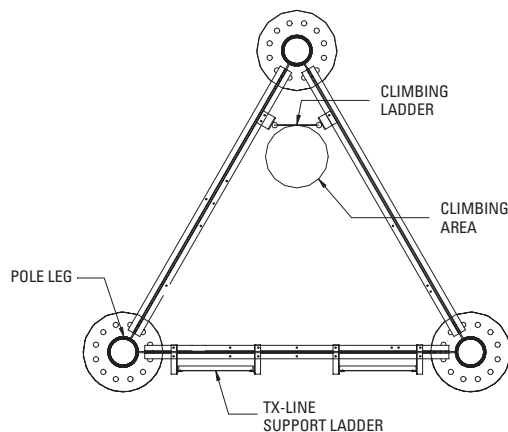
### Tripole Series



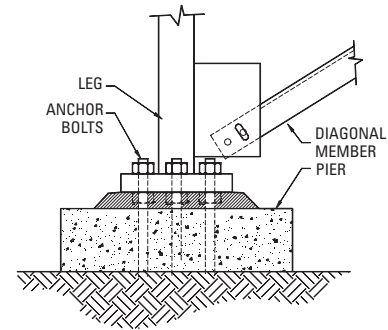
TYPICAL SECTION OF 75" TRIPOLE



TYPICAL SECTION OF 98" TRIPOLE

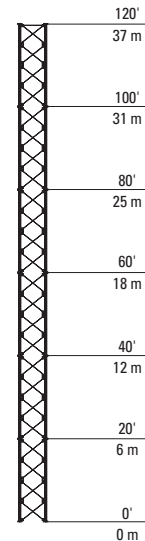


TYPICAL SECTION OF 144" TRIPOLE



BASE DETAIL

#### NOMINAL HEIGHT



TYPICAL ELEVATION OF 75" TRIPOLE



## Monopole Structures



### General Information

A monopole is a freestanding self-supporting structure that has limited land requirements and can be an effective solution to strict zoning codes. Radian monopoles are available in two designs, the Tapered Pole, a polygonal tubular steel structure, and the Flange Pole, a circular tubular steel structure. With heights up to 250 ft. (76 m), Radian's versatile monopole designs can be used for a variety of applications.

### Optional Items

The monopole series of towers are supplied complete with anchor bolts, section bolts, external climbing ladder or step bolts, and installation drawings. The following items can be supplied when specified by the customer and/or designer to provide a complete structure:

- Grounding kit
- Factory painting
- Antenna mounts and supports
- Fall-arresting devices and accessories
- Transmission line bridge
- Antennas and transmission lines as specified by the customer
- Antenna ice guards
- Lighting kit
- Transmission line support and brackets
- Antenna platforms
- Anti-climb systems

### Engineering

- Monopoles are designed in accordance with the Standard TIA/EIA-222 or CSA Standard S37, latest issue.
- Monopoles can be designed for compliance with other standards and specifications as required.
- Monopoles are designed for the specified wind and ice loading conditions applicable to the particular site conditions.
- Material is selected from standard sizes, to resist the maximum design loads.
- Foundations are selected and designed to suit the conditions reported at the site.
- Monopoles are designed to applicable specifications using our propriety in-house monopole computer program.

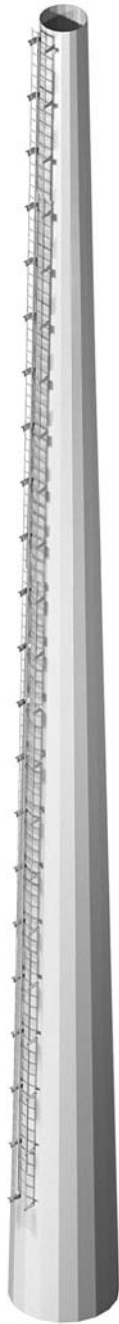
### Manufactured & Purchased Materials

- All structural steel conforms to ASTM A6, CSA Standard G40.20, G40.21, and other standards as applicable.
- All welding conforms to the requirements of the American Welding Society D1.1 and CSA Standard W59.
- All material is hot-dip galvanized after fabrication to ASTM Standard A123 and CSA Standard G164.
- All structural bolts conform to ASTM Standard A325 or ANSI/ASME B18.2.1 Grade 5 and are galvanized to ASTM Standard A153.
- All concrete conforms to the Standard ACI 318 or CSA Standards A23.1 to A23.3.
- All other purchased parts are in accordance with applicable standards.
- Radian manufacturing quality meets or exceeds the requirements of ISO 9001:2000, AISC Quality Certification Conventional Steel Structures and Complex Steel Building Structures, and the Canadian Standards Association.
- All welding is performed in our CWB-certified facilities.

### Available Series

- Tapered
- Flanged

## Monopole Structures – Tapered Pole



**Typical Tapered Pole Profile**

### Tapered Pole

The Tapered Pole is a polygonal self-supporting tubular steel structure capable of applications of heights up to 250 ft. (76 m).

### Applications

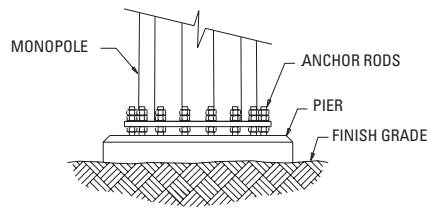
- Cellular and PCS antenna systems
- Amps platforms, microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Supporting a wide variety of UHF, VHF, YAGI, and reflector-type antennas
- The tower design can be easily modified to accommodate a wide variety of other antenna types and sizes, depending on the application.
- Studio to transmitter links
- Roof or ground mounted to suit site requirements
- Various other antenna types, sizes, and loading conditions can be accommodated utilizing suitable sections of the tower.

### Features

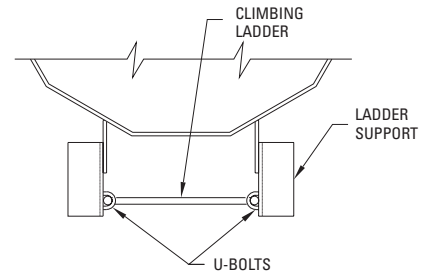
- Aesthetically designed to facilitate site-planning approval.
- Small footprint has minimal land requirements.
- Simple design facilitates rapid installation.
- Tapered multi-sided sections use a “slip-fit” splice design allowing for a smooth exterior appearance.
- Individual designs created to meet customers’ specifications and site-specific wind and ice conditions.
- Monopoles are supplied complete with tapered sections, optional external climbing facility (ladder or step bolts) and anchor bolts with templates.
- Antenna mounts are easily bolted to sections at the desired levels and positions.
- Internal transmission line support is included.
- Meets climbing requirements of CSA-S37 and EIA-222.
- Optional external face-mounted transmission line brackets are included.
- Utilizes a wide variety of Radian standard antenna mount hardware.

## Monopole Structures – Tapered Pole

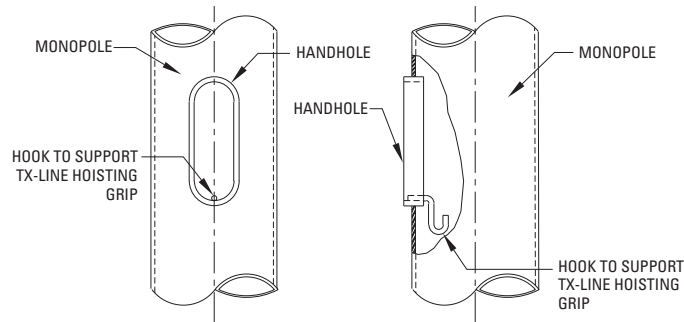
### Tapered Pole



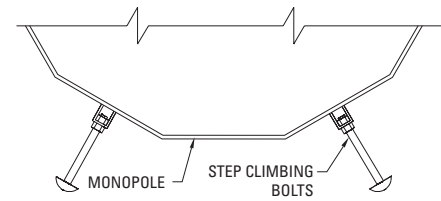
BASE DETAIL



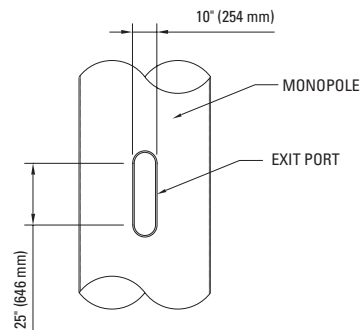
LADDER DETAIL



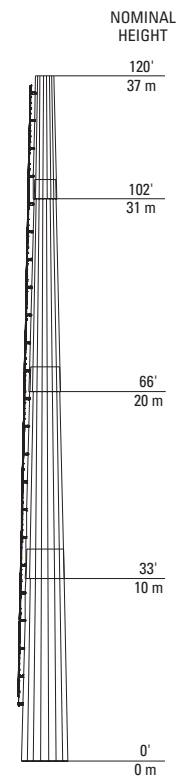
HANDHOLE DETAIL



STEP BOLT DETAIL

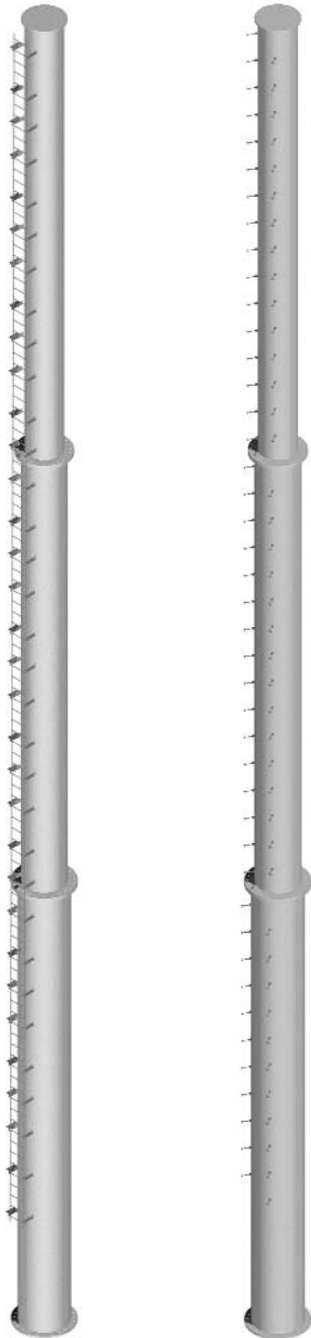


EXIT PORT DETAIL



TYPICAL ELEVATION

## Monopole Structures – Flanged Pole



Climbing Ladder

Step Bolts

Typical Flanged Pole Profiles

### Flanged Poles

The Flanged Pole is a circular tubular steel self-supporting aesthetic structure capable of applications at heights up to 150 ft. (45 m).

### Applications

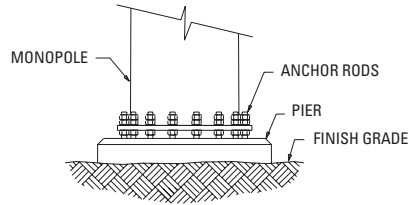
- Cellular and PCS antenna systems
- Amps platforms, microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- The tower design can be easily modified to accommodate a large assortment of other antenna types and sizes, depending on the application, by utilizing suitable sections of the pole.
- Supporting a wide variety of UHF, VHF, YAGI, and reflector-type antennas
- For supporting point to multi-point antennas
- For support of surveillance cameras
- Studio to transmitter links
- Roof or ground mounted to suit site requirements

### Features

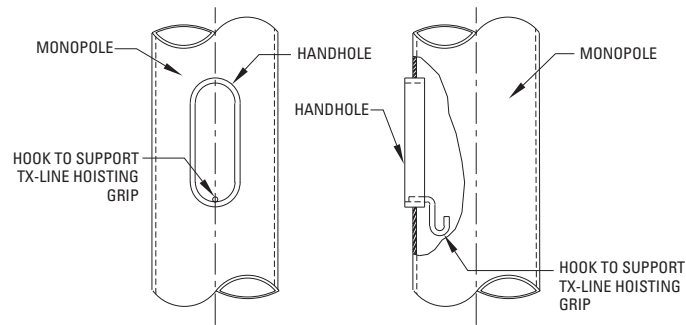
- Aesthetically designed to facilitate site-planning approval.
- Small footprint has minimal land requirements.
- Simple design facilitates rapid installation.
- Individual designs created to meet customers' specifications and site-specific wind and ice conditions.
- Monopoles are supplied complete with flanged tubular sections, step-bolt climb system, and anchor bolts with templates. Climbing ladder is available as an option.
- Internal transmission line support increases protection for transmission lines.
- Utilizes a wide variety of Radian standard antenna mount hardware.
- Towers are designed to applicable specifications using our proprietary in-house tubular pole computer program.
- Meets climbing requirements of CSA-S37 and EIA-222.
- Greater tower heights are available, depending on the application.

## Monopole Structures

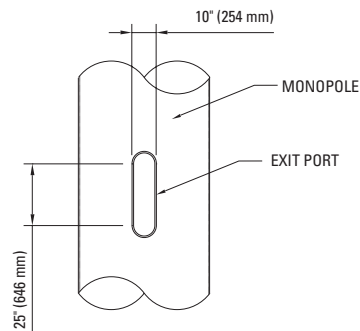
### Flanged Steel Poles



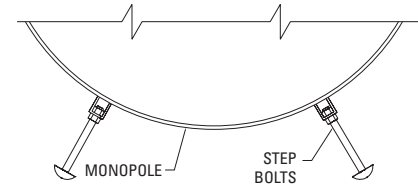
BASE DETAIL



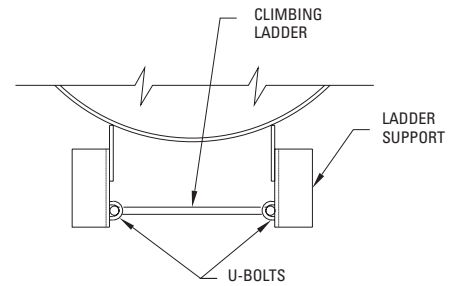
HANDHOLE DETAIL



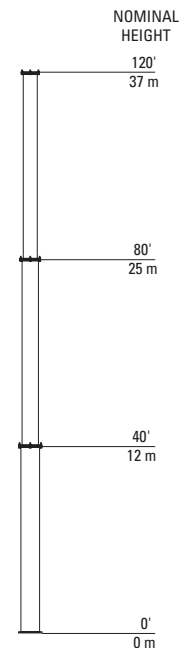
EXIT PORT DETAIL



STEP BOLT DETAIL



LADDER DETAIL



TYPICAL ELEVATION OF FLANGE MONOPOLE

Pole sections vary up to 40' (12 m) in length.





## Guyed Structures



### General Information

A guyed tower is composed of a relatively slender mast supported by steel wires at the necessary levels. This composition makes the guyed towers versatile and will accommodate a variety of applications. Radian offers a variety of guyed towers in both all-welded and knock-down configurations. The towers are commonly three-sided equilateral triangular masts. However, four-sided masts are easily furnished. Radian tower types cover all possible range of requirements up to 2,000 ft. (600 m) in height.

Towers are supplied complete with tower sections, bases, splice bolts, climbing system, guys, guy hardware, anchor (foundation) steel and installation drawings.

### Available Series

- RG24
- RG33
- RG42
- RG44
- RG55

### Optional Items

The following items can be supplied as specified by the customer and/or designer to provide a complete structure:

- Antenna mounts and supports
- Antenna ice guards
- Anti-climb systems
- Factory painting
- Transmission line bridge
- Transmission line support brackets
- Torsion resistors at required guy levels to control twist and deflections
- Ladder safety climbing device and accessories
- Antennas and transmission lines as specified by the customer
- Interchange and special-purpose platforms
- Lighting system to FAA, MOT and I.C.A.O. requirements for either strobe or red-light systems
- Guy and base insulators, when applicable
- Grounding materials

### Optional Items – RT Series Towers Only

- Utility circuit
- Power circuits
- De-icing circuit
- Communication conduit
- Special two-man lift (RT8, RT10 & RT12)
- High-frequency guy vibration dampers
- Low-frequency guy vibration dampers
- Spherical base bearing
- Candelabra or T-bar structures to support two or more antennas at the top of the tower

### Engineering

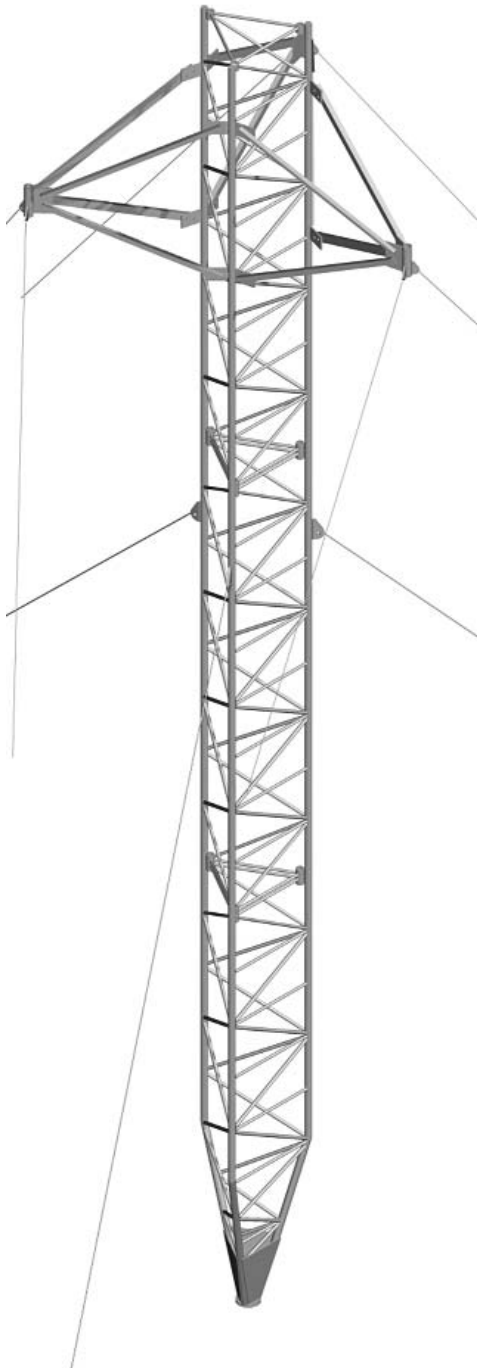
- Towers are designed in accordance with the Standard ANSI/TIA/EIA-222 or CSA Standard S37, latest issue.
- Towers can be designed for compliance with other standards and specifications as required.
- Towers are designed for the specified wind and ice loading conditions applicable to the particular site conditions.
- Leg and web members are selected from standard sizes to resist the maximum design loads.
- Foundations are selected and designed to suit the conditions reported at the site.

### Manufactured & Purchased Materials

- All structural steel conforms to ASTM A6, A572-GR.50 or CSA Standard G40.20, G20.21 and other standards as applicable.
- All welding conforms to the requirements of the American Welding Society D1.1 or CSA Standard W59.
- All material is hot-dip galvanized after fabrication to ASTM Standard A123 or CSA Standard G164.
- All structural bolts conform to ASTM Standard A325 or ANSI/ASME B18.2.1 Grade 5 and are galvanized to ASTM Standard A153.
- Extra high-strength (EHS) wire strand conforms to ASTM Standard A475, guy strand (GS) conforms to CSA Standard G12 Grade 180, and bridge strand (BS) conform to ASTM Standard A586.
- All guy strands are galvanized. They are pre-stressed, measured and stripped when specified by the customer and/or designer.
- Guy hardware conforms to ASTM Standard A148 and is hot-dip galvanized. Finished assemblies are proof-tested after socketing when specified by the customer and/or designer.
- All concrete components conform to the Standard ACI 318 or CSA Standards A23.1 to A23.3.
- All other purchased parts are in accordance with applicable standards.
- Radian manufacturing quality meets or exceeds the requirements of ISO 9001:2000, AISC Quality Certification Conventional Steel Structures and Complex Steel Building Structures, and the Canadian Standards Association.
- All welding is performed in our CWB-certified facilities.



## Guyed Structures – RG24



Typical RG24 Profile

### RG24 Series Tower

The RG24 series guyed tower is an equilateral triangular, all-welded structure with a 24" (610 mm) nominal face width. Each 10ft. (3 m) section is joined together by three splice-tube connections. This series is capable of applications up to 400 ft. (120 m).

### Applications

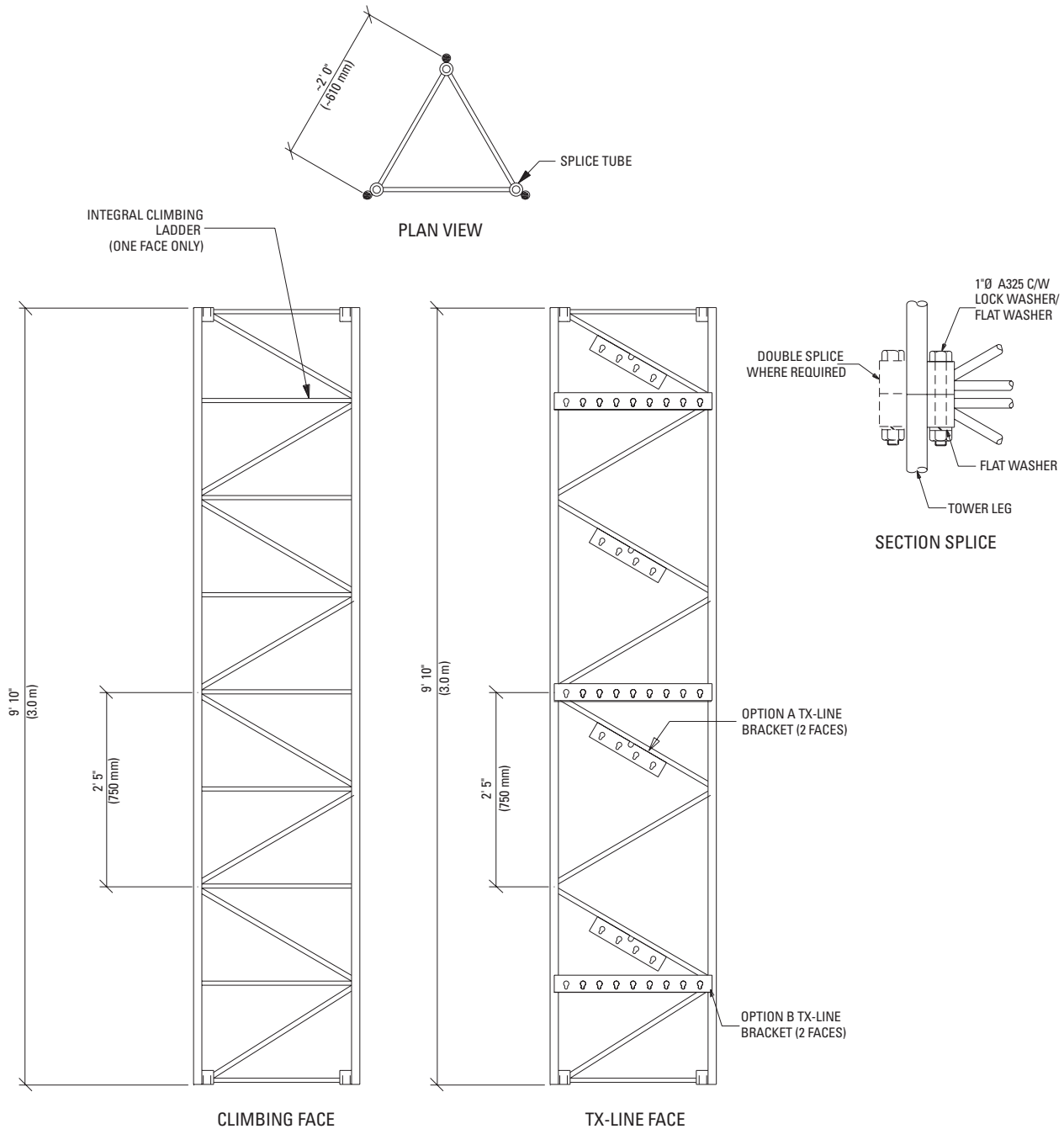
- Cellular and PCS antenna systems
- AM radiators utilizing guy insulators and a base insulator
- UHF, VHF, YAGI and reflector-type antennas
- FM broadcast antenna support
- HF antenna support structures
- Microwave antenna applications (Sizes up to 8 ft. (2.4 m) solid or 10 ft. (3 m) grid parabolic antennas can be supported depending on height and loading conditions.)
- Combinations of the above antennas or other loading applications within the capacity range of the sections

### Features

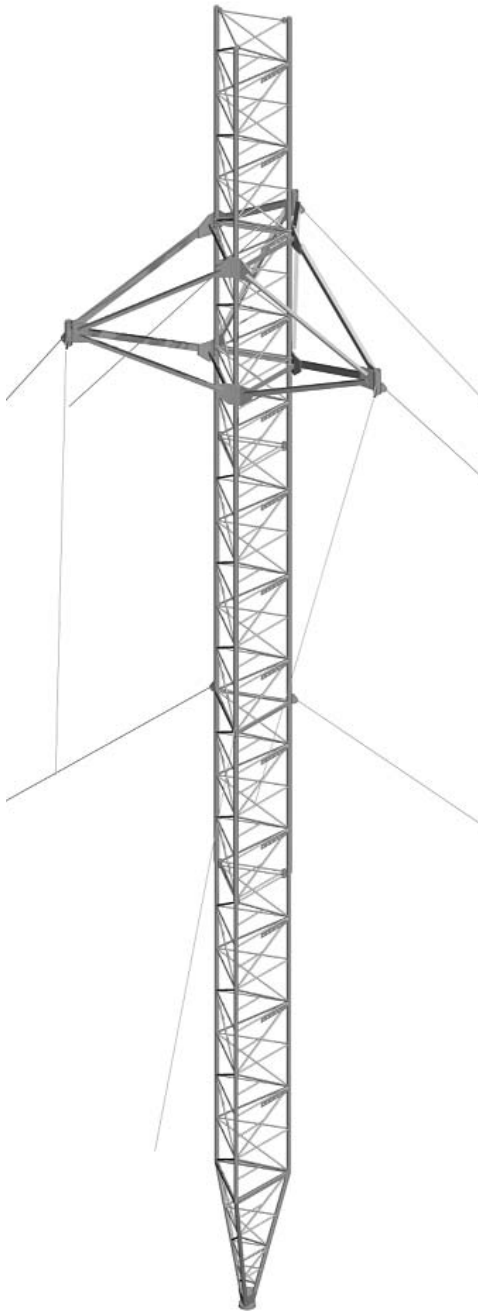
- The RG24 tower is a standard pre-engineered series.
- Individual designs created from standard sections to meet customers' specifications and individual site wind and ice conditions.
- Legs, diagonals and horizontals are solid rounds, factory-welded to form a rigid equilateral triangular section. Special jigs are employed to ensure uniformity of the sections.
- Leg members are 1 1/2" (38 mm), to 2" (51 mm) in diameter, solid round bars of 50 ksi (350 MPa) steel.
- Horizontal and diagonal members are solid round bars of a minimum of 44 ksi (300 MPa) yield steel.
- Integral horizontals provided on one face to facilitate climbing and the support of a safety climb device, if required.
- The standard base section is tapered and uses a pin-type connection to interface with the base pier.
- Guy lugs are factory-welded to the section at the required levels.
- 10 ft. (3 m) diversity torsion resistors are employed by design to resist twisting effects of antennas and maintain their directional bearing.
- Mounts for antennas are easily connected to the sections at the desired positions.
- Factory-welded transmission line supports every 2' 6" (750 mm) on two faces of the tower section that accommodate both bolt-on and snap-on hangers.
- Experienced tower crews can easily and quickly erect this series of tower.

## Guyed Structures – RG24

### RG24 Series Tower



## Guyed Structures – RG33



Typical RG33 Profile

### RG33 Series Tower

The RG33 series guyed tower is an equilateral triangular, all-welded structure with a 33" (840 mm) nominal face width. Each 20 ft. (6.07 m) section is joined together by three splice-tube connections. This series is capable of applications up to 600 ft. (180 m).

### Applications

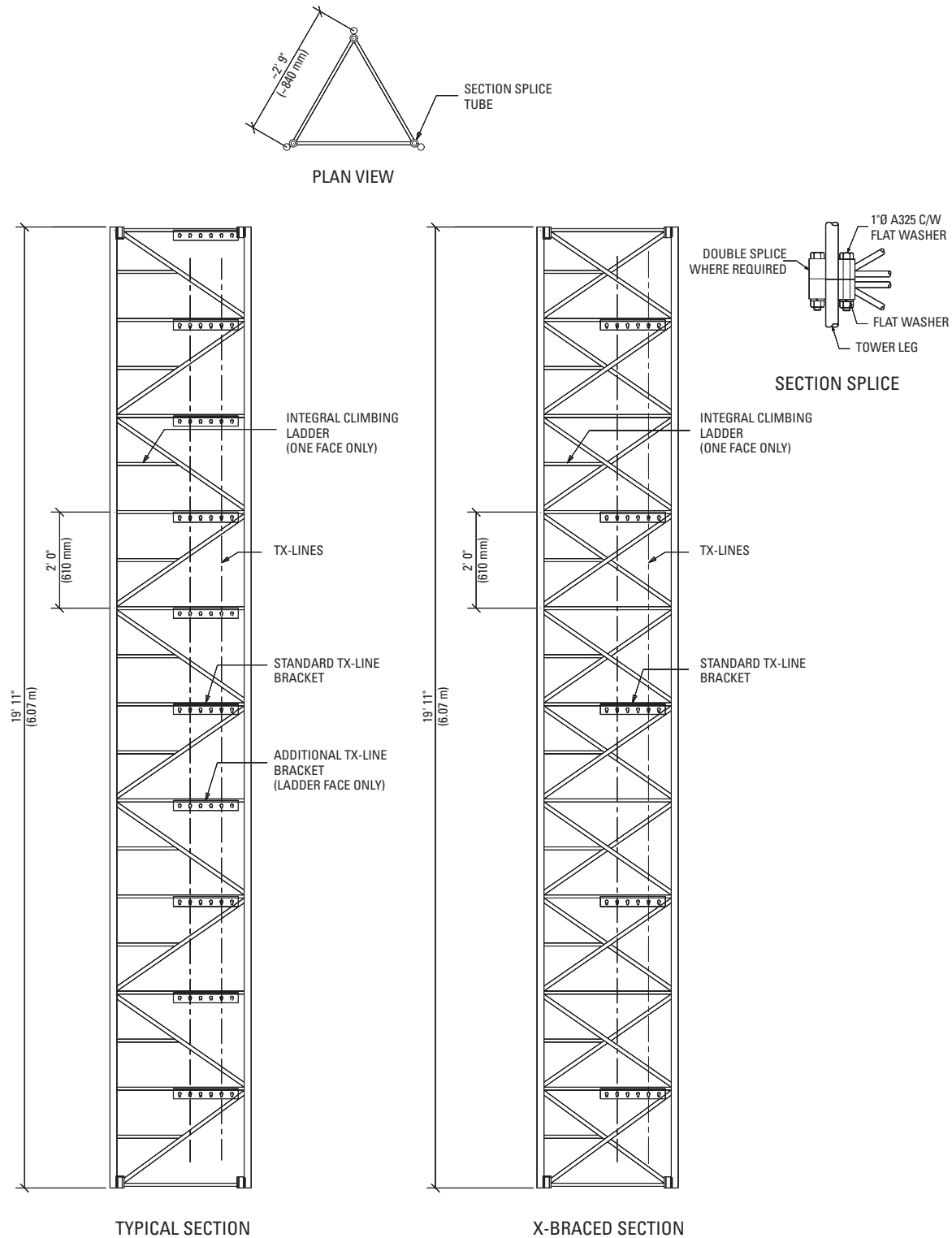
- Cellular and PCS antenna systems
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Wide variety of UHF, VHF, YAGI and reflector-type antennas
- AM and LF radiators, utilizing guy insulators and a base insulator
- TV and FM broadcast antennas
- Combinations of the above antennas or other loading applications within the capacity range of the sections

### Features

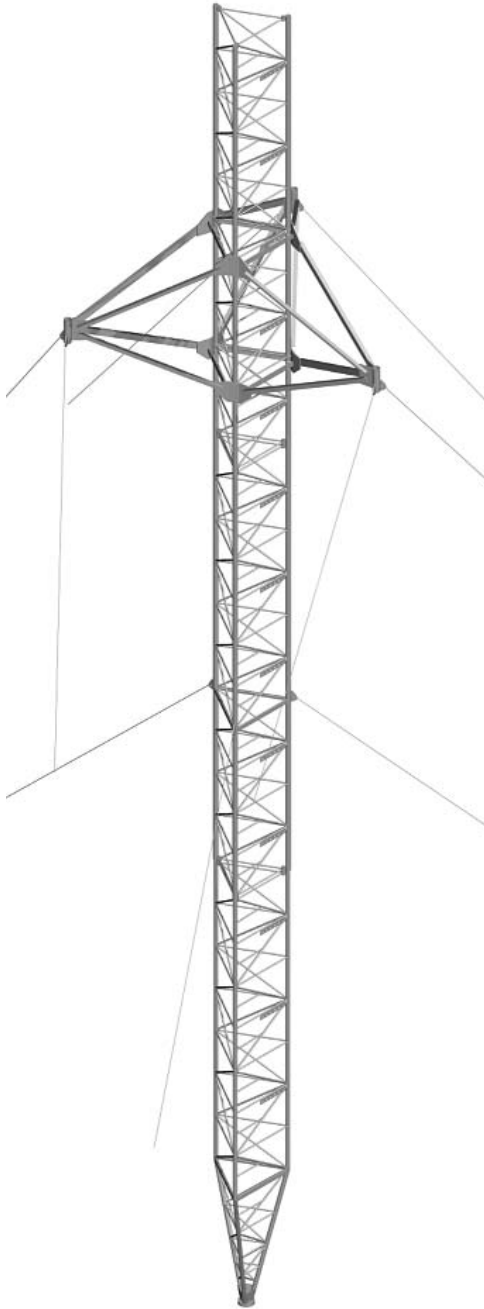
- The RG33 tower is a standard pre-engineered series.
- Individual designs created from standard sections to meet customers' specifications and individual site wind and ice conditions.
- Tower legs, diagonals and horizontals are solid rounds, factory-welded to form a rigid equilateral triangular section. Special jigs are employed to ensure uniformity of the sections.
- Leg members are 1 1/2" (38 mm) to 2 1/2" (64 mm) in diameter, solid round bars of 50 ksi (350 MPa) yield steel.
- Horizontal and diagonal members are solid round bars of a minimum of 44 ksi (300 MPa) yield steel.
- Factory-welded integral horizontal rungs provided on one face for climbing and for the support of a safety climb device, if required.
- Transmission line supports located every 2 ft. (600 mm) on ladder face and every 4 ft. (1,200 mm) on the remaining two faces accommodate snap-on and/or bolt-on hangers.
- The standard base section is tapered and uses a pin-type connection to interface with the base pier.
- Guy lugs are factory-welded to section at the required levels.
- 12 ft. (3.6 m) and 18 ft. (5.5 m) diversity torsion resistors are employed as required by design to resist the twisting effect of antennas and maintain their directional bearing.
- Antenna mounts are easily U-bolted to the sections at the desired levels and positions.
- There is a wide variety of optional antenna mounts and platforms.
- Experienced tower crews can quickly erect this series of tower.

## Guyed Structures – RG33

### RG33 Series Towers



## Guyed Structures – RG42



Typical RG42 Profile

### RG42 Series Tower

The RG42 series guyed tower is an equilateral triangular, all-welded structure with a 42" (1,070 mm) nominal face width. Each 20 ft. (6.07 m) section is joined together by three splice-tube connections. This series is capable of applications up to 700 ft. (210 m).

### Applications

- Cellular and PCS antenna systems
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Wide variety of UHF, VHF, YAGI and reflector-type antennas
- AM and LF radiators, utilizing guy insulators and a base insulator
- TV and FM broadcast antennas
- Combinations of the above antennas or other loading applications within the capacity range of the sections

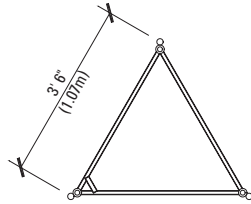
### Features

- The RG42 tower is a standard pre-engineered series.
- Individual designs created from standard sections to meet customers' specifications and individual site wind and ice conditions.
- The legs, diagonals, and horizontals are solid rounds, factory-welded to form a rigid equilateral triangular section. Special jigs are employed to ensure uniformity of the sections.
- Leg members are 1 1/2" (38 mm) to 3" (76 mm) in diameter, solid round bars of 50 ksi (350 MPa) yield steel.
- Horizontal and diagonal members are solid round bars of a minimum of 44 ksi (300 MPa) yield steel.
- Factory-welded integral horizontal rungs provided on one face for climbing and for the support of a safety climb device, if required.
- Factory-welded transmission line supports located every 2 ft. (600 mm) on ladder face and every 4 ft. (1,200 mm) on the remaining two faces accommodate snap-on and/or bolt-on hangers.
- The standard base section is tapered and uses a pin-type connection to interface with the base pier.
- Guy lugs are factory-welded at the required levels.
- 12 ft. (3.6 m) and 18 ft. (5.5 m) diversity torsion resistors are employed by design to resist the twisting effect of antennas and maintain their directional bearing.
- There is a wide variety of optional antenna mounts and platforms.
- Experienced tower crews can quickly erect this series of tower.

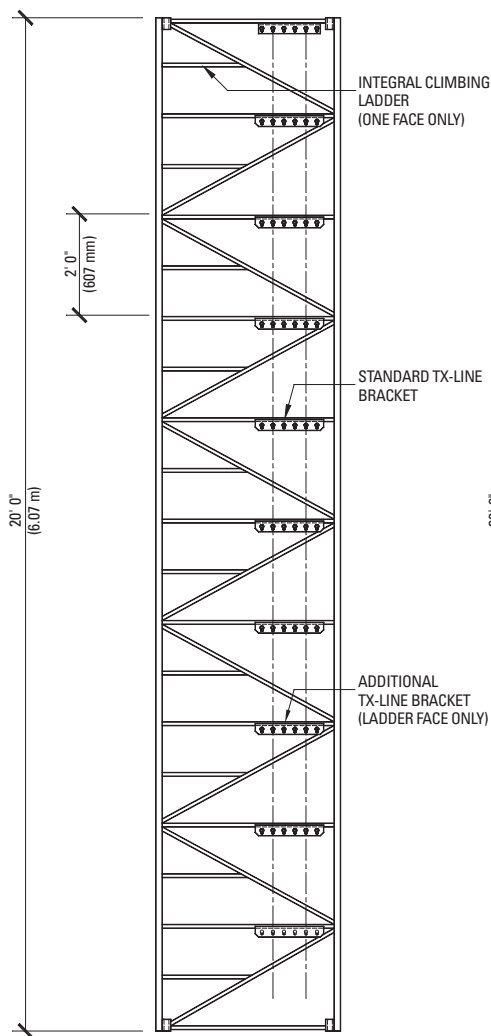


## Guyed Structures – RG42

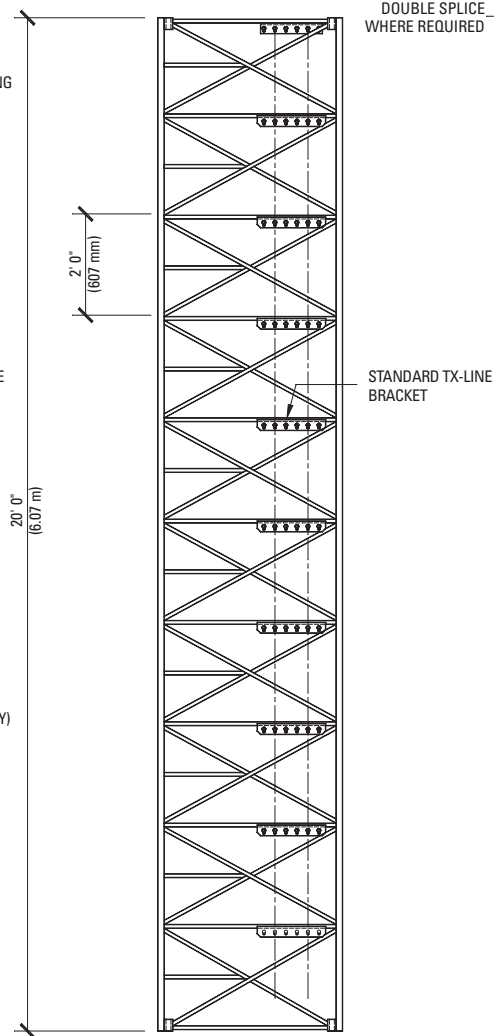
### RG42 Series Towers



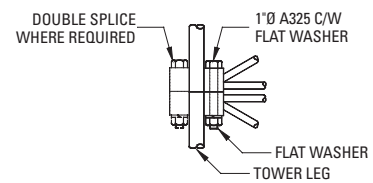
PLAN VIEW



TYPICAL SECTION

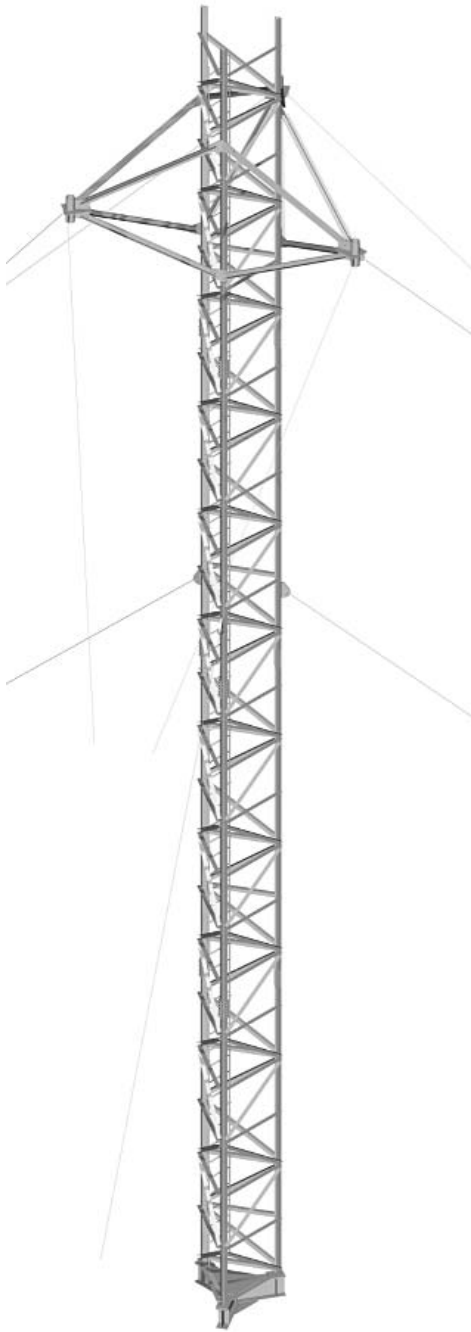


X-BRACED SECTION



SECTION SPLICE

## Guyed Structures – RG44



Typical RG44 Profile

### RG44 Series Tower

The RG44 series guyed tower is an equilateral triangular, site-assembled, knock-down structure with a 44" (1,120 mm) nominal face width. Each 20 ft. (6.07 m) section is bolted together by internal and external splice plates on all three legs. This series is capable of applications up to 600 ft. (180 m).

### Applications

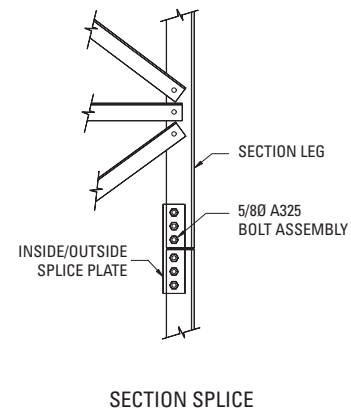
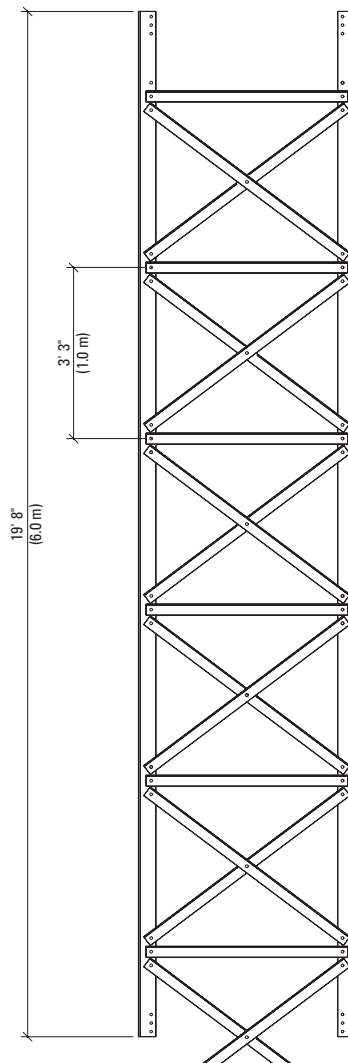
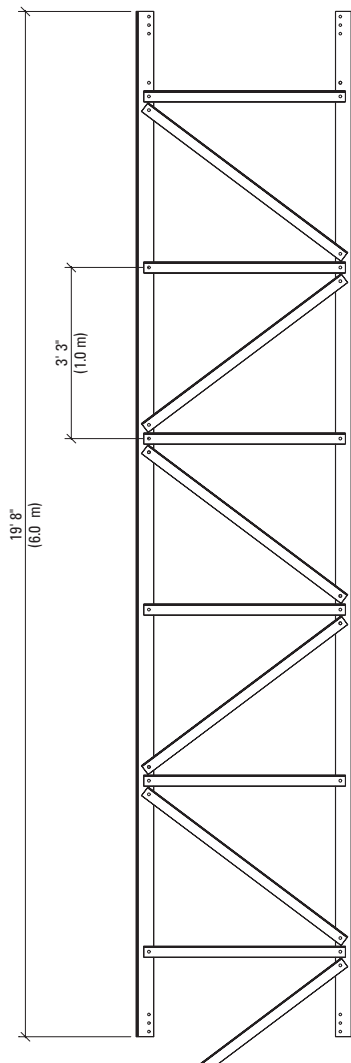
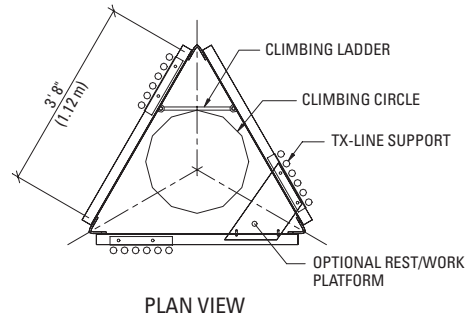
- Multiple TV transmitting antennas atop or on the side of the tower
- FM antennas at required elevations and orientations
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Multi-antenna CATV head-end systems
- AM and LF radiators utilizing guy and base insulators
- Cellular and PCS systems
- Combination of the above antennas or other loading applications within the tower's capacity range

### Features

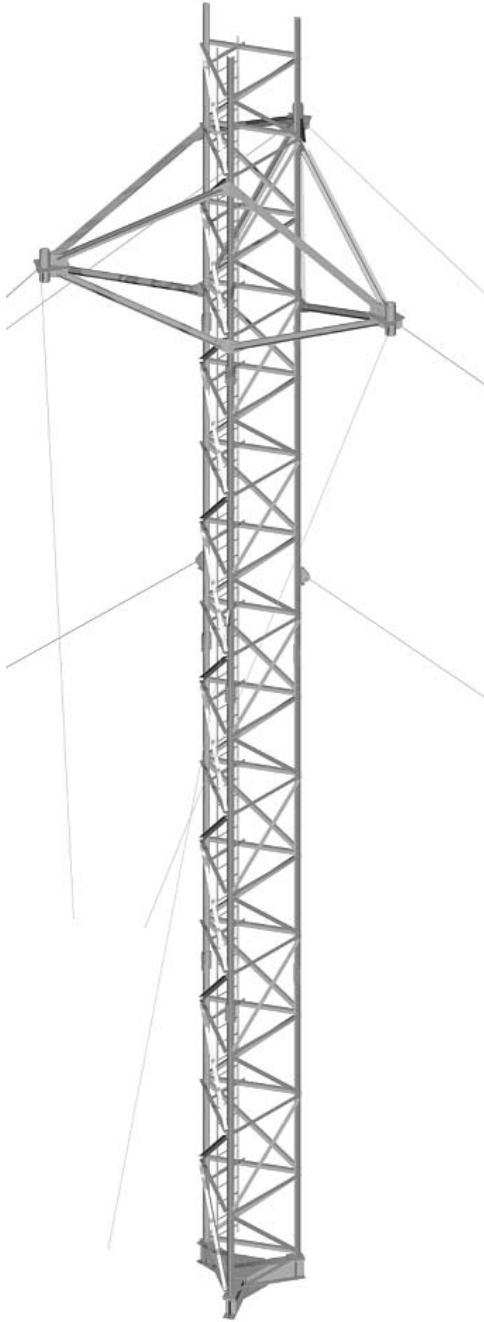
- RG44 series is a standard pre-engineered series.
- The legs are structural angles roll-formed to 60°.
- Leg sizes range from L4" x 4" x 3/8" (L102 x 102 x 10 mm) to L5" x 5" x 5/8" (L127 x 127 x 16 mm) of 44 ksi (300 MPa) steel.
- The horizontal and diagonal web members are bolted angles.
- Horizontal members are at 39" (1,000 mm) centers in all three faces.
- Transmission line support brackets are versatile to suit a variety of configurations.
- There is a wide variety of optional antenna mounts and platforms.
- Guy lugs are bolted on at required levels.
- 7.4 ft. (2.25 m) and 18 ft. (5.5 m) diversity torsion resistors are employed as required by design to resist the twisting effect of antennas and to maintain their directional bearing.
- A star base section is employed to provide a maximum of straight shaft at the tower base. This facilitates the mounting of transmission lines and allows easy access to the climbing ladder.
- An internal ladder is provided for ease of climbing and the support of safety climb device, if required.
- Experienced tower crews can quickly erect this series of tower.

## Guyed Structures – RG44

### RG44 Series Tower



## Guyed Structures – RG55



Typical RG55 Profile

### RG55 Series Tower

The RG55 series guyed tower is an equilateral triangular, site-assembled, knock-down structure with a 55" (1,400 mm) nominal face width. Each 20 ft. (6.07 m) section is bolted together by internal and external splice plates on all three legs. This series is capable of applications up to 750 ft. (230 m).

### Applications

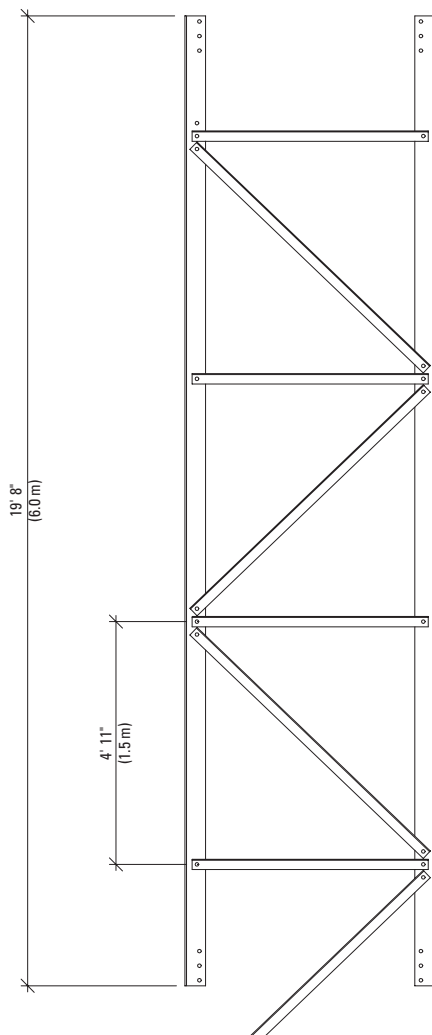
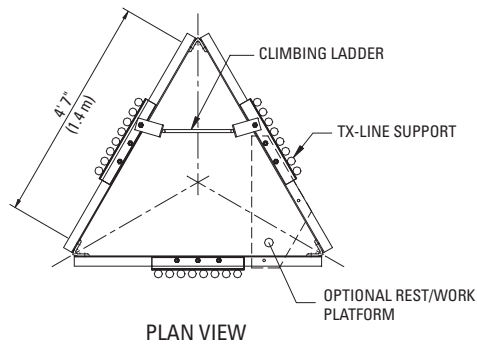
- Multiple TV transmitting antennas atop or on the side of the tower
- FM antennas at required elevations and orientations
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Multi-antenna CATV head-end systems
- AM and LF radiators utilizing guy and base insulators
- Cellular and PCS systems
- Combination of the above antennas or other loading applications within the tower's capacity range

### Features

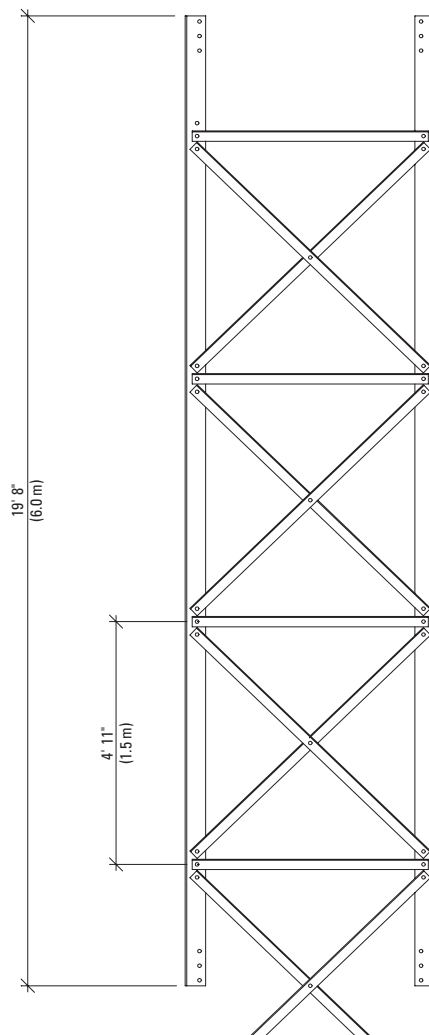
- RG55 series tower is custom designed, utilizing standard components to suit each customer's individual site requirements.
- The legs are structural angles roll-formed to 60°.
- Leg sizes range from L4" x 4" x 3/8" (L102 x 102 x 10 mm) 44 ksi (300 Mpa) to L8" x 8" x 3/4" (L203 x 203 x 19 mm) of 50 ksi (350 MPa) steel.
- The horizontal and diagonal web members are bolted angles.
- Horizontal members are at 59" (1,500 mm) centers on all three faces.
- Transmission line support brackets are versatile to suit a variety of configurations.
- Antenna mounts are designed to suit a variety of load requirements.
- Guy lugs are factory welded at required levels.
- 11.5 ft. (3.5 m) and 18 ft. (5.5 m) diversity torsion resistors are employed as required by design to resist the twisting effect of antennas and to maintain their directional bearing.
- A star base section is employed to provide a maximum of straight shaft at the tower base to facilitate the mounting of transmission lines and for easy access to the climbing ladder.
- An internal ladder is provided for ease of climbing and the support of safety climb device, if required.
- Experienced tower crews can quickly erect this series of tower.

## Guyed Structures – RG55

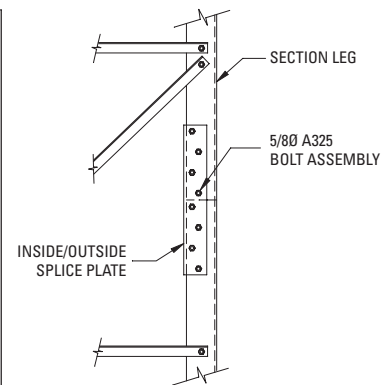
### RG55 Series Tower



TYPICAL SECTION



X-BRACED SECTION



SECTION SPLICE





## Aesthetic Structures

### Aesthetic Towers

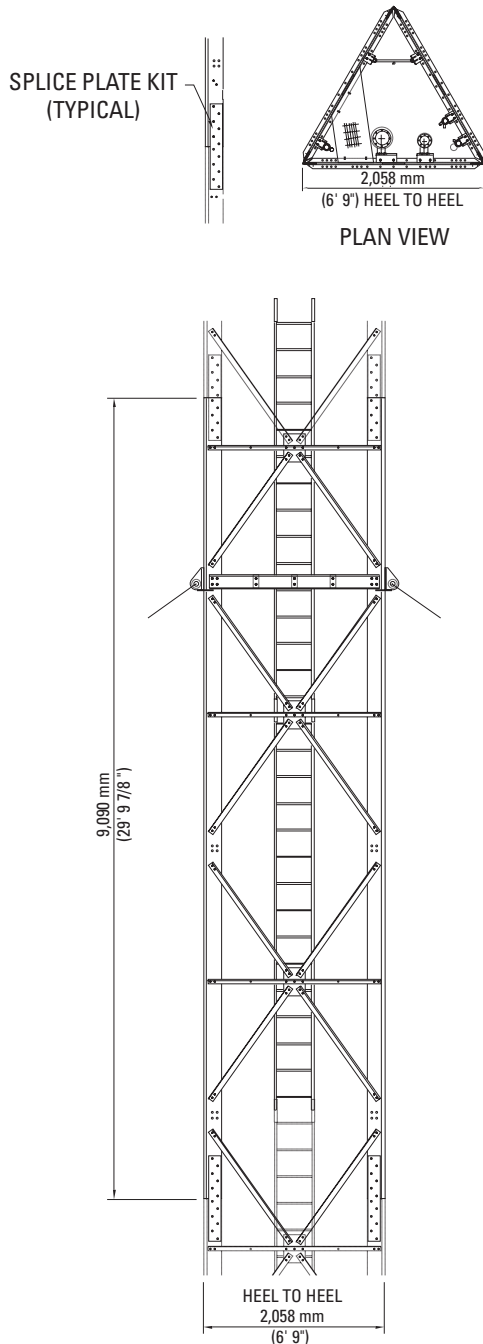
Public opinion is playing an ever-greater role in the development of tower sites, particularly in urban and suburban settings. Often, a customized solution is required to satisfy all stakeholders involved in the site. Radian can work with you to develop customized tower solutions using a wide range of tower types and RF neutral materials.

An example of Radian custom-designed towers is the self-supporting tower installed in Sacramento, California. It utilizes fiberglass panels in attractive geometric arrangement on each outer face of the structure to conceal the microwave and wireless antennas within the tower framework. In Montreal, Quebec, a tower was constructed out of prestressed concrete panels to blend in with the office building adjacent to the structure and with surrounding office buildings in the vicinity, resulting in a visually pleasing structure. In Ottawa, Ontario, an aesthetic structure was designed and installed for a radio station building rooftop that incorporated metal art sculptures. These are a few examples of what Radian can do to find innovative solutions and satisfy difficult requirements.

When such a situation occurs, please contact Radian at [sales@radiancorp.com](mailto:sales@radiancorp.com) for more information.



## Tall Tower Structures – RT7



### RT7 Series Tower

The RT7 series guyed tower is an equilateral triangular, site-assembled, knock-down structure with a 6' 9" (2,058 mm) nominal face width. Each 30 ft. (9.09 m) section is bolted together by internal and external splice plates on all three legs for angle legs, and by flange plates for solid round legs. This series is capable of applications at up to 1,200 ft. (365 m).

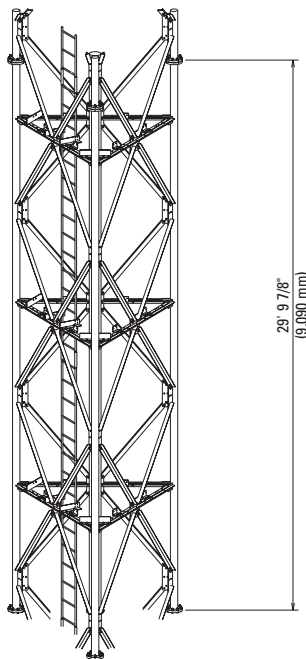
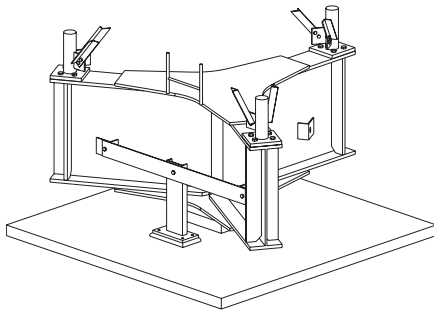
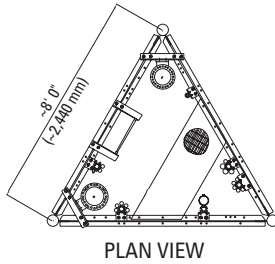
### Applications

- Multiple TV transmitting antennas atop or on the side of the tower
- FM antennas at required elevations and orientations
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Multi-antenna CATV head-end systems
- LF radiators utilizing guy and base insulators
- Cellular and PCS systems
- Directional and omni-directional mobile radio antennas
- Combination of the above antennas or other loading applications within the tower's capacity range

### Features

- RT7 series tower is designed utilizing standard components to suit each customer's individual site requirements.
- This series has an open bracing system that provides an economical design while meeting the most stringent strength requirements.
- Leg members are solid rounds or structural angles roll-formed to 60°.
- Leg sizes range from L6" x 6" x 3/8" (L152 x 152 x 10 mm) to L8" x 8" x 1 1/8" (L203 x 203 x 29 mm) 50 ksi (350 MPa) or solid round 3" (76 mm) dia. to 8" (203 mm) dia. 50 or 58 ksi steel (350 or 400 MPa).
- The diagonal web members are bolted angle or solid round hog rod members.
- Horizontal members are back-to-back angle members bolted at 119" (3,030 mm) centers on all three faces.
- There are versatile transmission line support brackets to suit a variety of configurations.
- Antenna mounts are designed to suit a variety of load requirements.
- Guy lugs are factory welded at required locations.
- A star base is employed to achieve a straight shaft at the base of the tower to facilitate the mounting of transmission lines and for ease of access to the climbing ladder.
- Rest, transfer platform, and internal ladder are provided to facilitate climbing and the support of safety climb device if required.
- Experienced tower crews can quickly erect this series of tower.

## Tall Tower Structures – RT8



### RT8 Series Tower

The RT8 series guyed tower is an equilateral triangular, site-assembled, knock-down structure with an 8' (2,450 mm) nominal face width. Each 30 ft. (9.09 m) section is bolted together by internal and external splice plates on all three legs for angle legs, and by flange plates for solid round legs. This series is capable of applications up to 1,400 ft. (427 m).

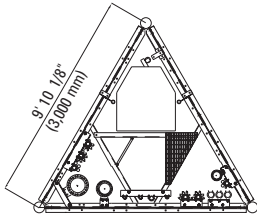
### Applications

- Multiple TV transmitting antennas atop or on the side of the tower
- FM antennas at required elevations and orientations
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Multi-antenna CATV head-end systems
- LF radiators utilizing guy and base insulators
- Cellular and PCS systems
- Directional and omni-directional mobile radio antennas
- Combination of the above antennas or other loading applications within the tower's capacity range

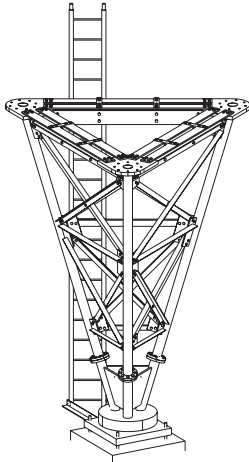
### Features

- RT8 series tower is designed utilizing standard components to suit each customer's individual site requirements.
- Leg members are solid rounds or structural angles roll-formed to 60°.
- Leg sizes range from L6" x 6" x 3/8" (L152 x 152 x 10 mm) to L8" x 8" x 1 1/8" (L203 x 203 x 29 mm) 50 ksi (350 MPa) or solid round 3" (76 mm) dia. to 8" (203 mm) dia. 50 or 58 ksi steel (350 or 400 MPa).
- The diagonal web members are bolted angle or solid round hog rod members.
- Horizontal members are back-to-back angle members bolted at 119" (3,030 mm) centers on all three faces.
- There are versatile transmission line support brackets to suit a variety of configurations.
- Antenna mounts are designed to suit a variety of load requirements.
- Guy lugs are factory welded at required locations.
- A star base is employed to achieve a straight shaft at the base of the tower to facilitate the mounting of transmission lines and for ease of access to the climbing ladder.
- Rest, transfer platform, and internal ladder are provided to facilitate climbing and the support of safety climb device if required.
- Elevator option is possible to provide single or double cars.

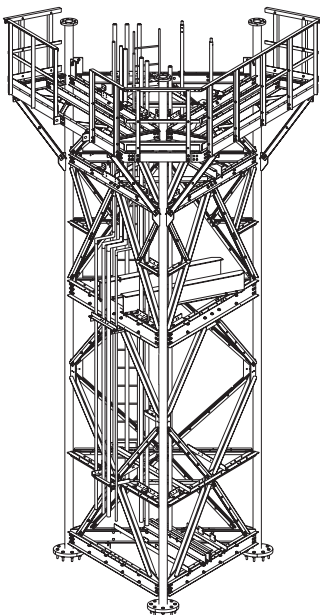
## Tall Tower Structures – RT10



PLAN VIEW



TAPERED BASE



ELEVATION VIEW

### RT10 Series Tower

The RT10 series guyed tower is an equilateral triangular, site-assembled, knock-down structure with a 9' 10" (3,000 mm) nominal face width. Each 30 ft. (9.09 m) section is bolted together by flange plates for solid round legs. This series is capable of applications at up to 1,700 ft. (518 m).

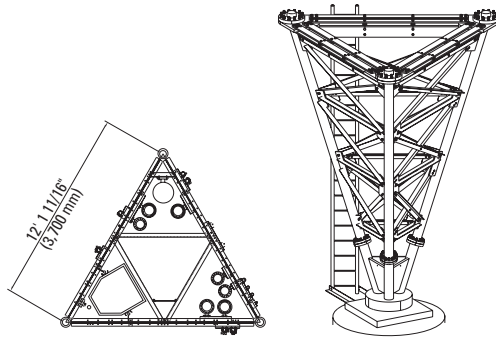
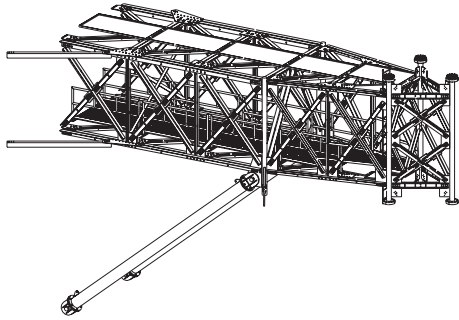
### Applications

- Multiple TV transmitting antennas atop or on the side of the tower
- FM antennas at required elevations and orientations
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Multi-antenna CATV head-end systems
- Cellular and PCS systems
- Directional and omni-directional mobile radio antennas
- Combination of the above antennas or other loading applications within the tower's capacity range

### Features

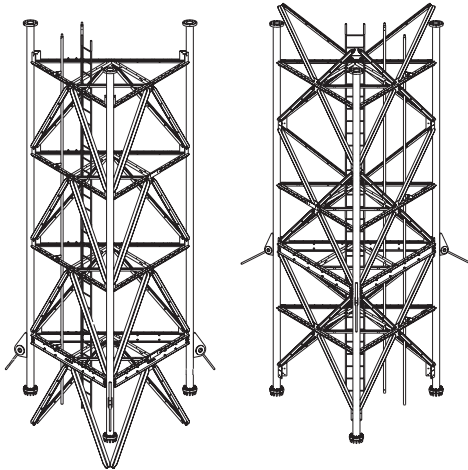
- RT10 series tower is designed utilizing standard components to suit each customer's individual site requirements.
- Leg members are solid rounds.
- Leg sizes range from solid round 4" (102 mm) dia. to 11" (279 mm) dia. 50 to 80 ksi steel (350 to 550 MPa).
- The diagonal web members are bolted angle or solid round hog rod members.
- There are versatile transmission line support brackets to suit a variety of configurations.
- Antenna mounts are designed to suit a variety of load requirements.
- Guy lugs are factory welded at required locations.
- A tapered base is employed at the base of the tower.
- Rest, transfer platform, and internal ladder are provided to facilitate climbing and the support of safety climb device if required.
- Access to tower top is made easy with standard elevator in either single or double cars.

## Tall Tower Structures – RT12



PLAN VIEW

TAPERED BASE



ELEVATION VIEW (K-BRACE)

ELEVATION VIEW (X-BRACE)

### RT12 Series Tower

The RT12 series guyed tower is an equilateral triangular, site-assembled, knock-down structure with a 12' 1" (3,700 mm) nominal face width. Each 30 ft. (9.09 m) section is bolted together by flange plates for solid round legs. This series is capable of applications at up to 2,000 ft. (610 m).

### Applications

- Multiple TV transmitting antennas atop or on the side of the tower
- FM antennas at required elevations and orientations
- Microwave antenna applications (High performance and standard, as well as grid parabolic antennas can be supported depending on height and loading conditions.)
- Multi-antenna CATV head-end systems
- LF radiators utilizing guy and base insulators
- Cellular and PCS systems
- Directional and omni-directional mobile radio antennas
- Combination of the above antennas or other loading applications within the tower's capacity range.

### Features

- RT12 series tower is designed utilizing standard components to suit each customer's individual site requirements.
- Leg members are solid rounds.
- Leg sizes range from solid round 4" (102 mm) dia. to 11" (279 mm) dia. 50 to 80 ksi steel (350 to 550 MPa).
- The diagonal web members are bolted angle or solid round hog rod members.
- There are versatile transmission line support brackets to suit a variety of configurations.
- Antenna mounts are designed to suit a variety of load requirements.
- Guy lugs are factory welded at required locations.
- A tapered base is employed at the base of the tower.
- Rest, transfer platform, and internal ladder are provided to facilitate climbing and the support of safety climb device if required.
- Access to tower top is made easy with standard elevator in either single or double cars.





## Catalog Kits

The following five-step procedure explains how to assemble the necessary kits for your requirements.

### STEP 1

Select appropriate Antenna Mount Kit to suit your specific requirements and any Antenna Pipe Kits that may be required for selected mount, e.g., Wireless Stand-off Antenna Frame.

### STEP 2

Select Pipe Mount Kit with correct diameter and length that meets with antenna mount requirements, which you selected in Step 1.

### STEP 3

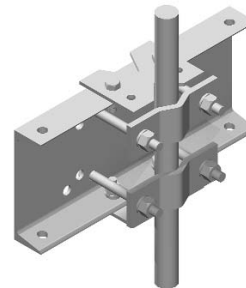
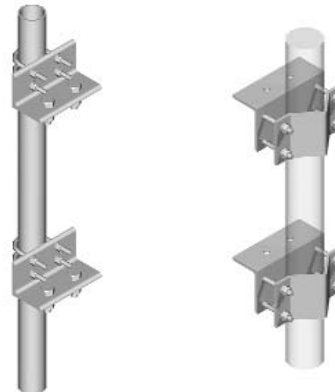
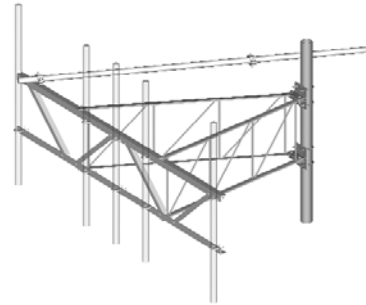
Select Leg Mounting Kit that suits your tower leg size, e.g., round, angle or tapered.

### STEP 4

If Antenna Mount Kit uses one or more strut arms, include a side strut support bracket for each strut arm.

### STEP 5

Multiply above kits by the number required and order.



## Engineering Terms & Conditions

All products shown in our catalog are intended to be used by personnel who are qualified, trained and experienced in the design and installation of communication structures and installations. A licensed professional engineer familiar with these structures must be consulted to perform thorough structural analysis

prior to any installation. Please contact us if you wish to perform these types of analyses. Prior to installation, structures must be at least visually inspected for corrosion by personnel experienced in that field.

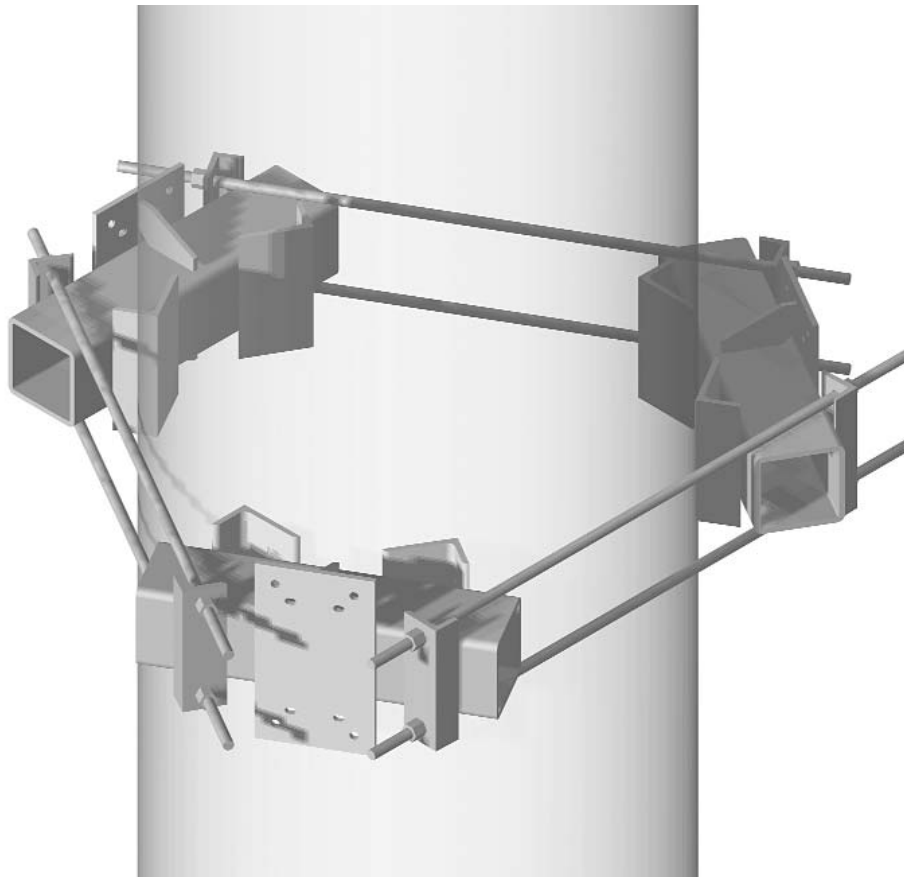
# tower accessories

## Antenna Mounts

### Monopole Collar Mounting Clamp

With three different sizes to allow mounting for all monopoles from 12" to 60" in diameter, Radian has the solution for any monopole antenna mounting needs you may have, either on round or multi-sided monopoles. Standard configuration uses three solid weldments secured by heavy-duty threaded rod, with all components hot-dip galvanized to provide maximum corrosion resistance. The flat mounting plate allows for quick and easy attachment of a variety of antenna mounts to realize any configuration requirements.

Part #	Description	Qty	Wt #
SMT015-1	12" to 24" (305-610 mm) dia. monopole collar mounting clamp	kit of 1	<b>260</b>
SMT015-2	24" to 36" (610-915 mm) dia. monopole collar mounting clamp	kit of 1	<b>287</b>
SMT015-3	36" to 60" (915-1,524 mm) dia. monopole collar mounting clamp	kit of 1	<b>400</b>



## Antenna Mounts

### Low-Profile Platform Mount

Capitalizing on the monopole clamp mount's potential, this rotational mount provides an efficient way to support wireless antennas. Constructed of hot-dip galvanized steel to provide exceptional corrosion protection, Radian's low-profile platform mounts offer tough and sturdy construction for a wide variety of antenna requirements. It comes in either 12-ft. or 15-ft. "face" sizes. The mount comes with grated corners and opening around the monopole for easy access. The mount will accommodate round or multi-sided polygon monopoles from 12" to 60" OD.

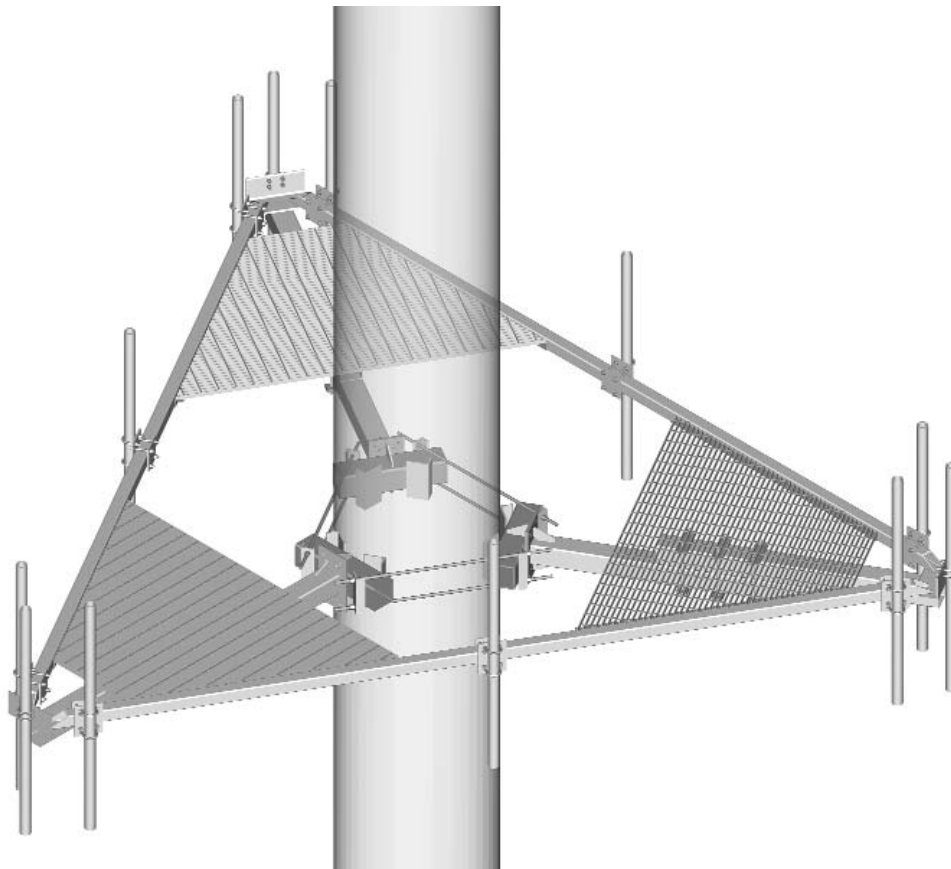
Item #	Description	Qty	Wt #
SMT023-1	low-profile platform – 15' diversity	kit of 1	<b>1,682</b>
SMT023-2	low-profile platform – 12' diversity	kit of 1	<b>1,452</b>

**Note:** Vertical Pipe Antenna Mounting Kits are not included. Two mounting kits are available:

### Vertical Pipe Antenna Mounting Kits

SMT025-1	standard mount – 2 7/8" OD x 5' to HSS 3" x 3" sq	kit of 1	<b>45</b>
SMT025-2	corner mount – 2 7/8" OD x 5'	kit of 1	<b>34</b>

Monopole Collar Mounting Clamp Kit is not included and should be ordered separately.



# tower accessories

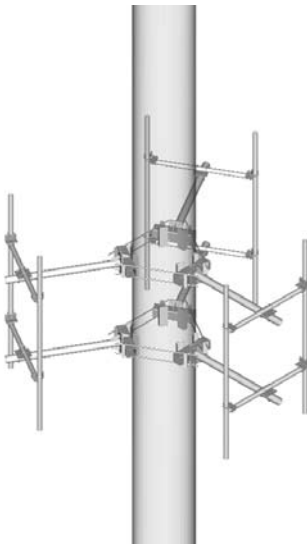
## Antenna Mounts

### Monopole T-Boom Pinwheel

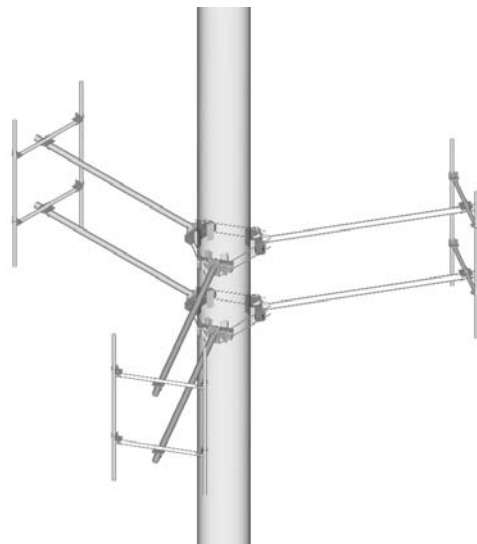
Capitalizing on the monopole clamp mount's potential, this rotatable, wireless T-boom pinwheel provides an efficient way to support wireless antennas. Constructed of hot-dip galvanized steel to provide exceptional corrosive protection, Radian's Monopole T-Boom Pinwheel antenna mounts offer tough and sturdy construction for a wide variety of antenna requirements. It comes in either 10' (3 m), 15' (4.5 m) or 20' (6 m) "face" sizes. The mount can also be used without the T-boom at the end. Additional kits can be added to increase the number of boom levels.

Item #	Description	Qty	Wt #
<b>Monopole T-Boom Pinwheel 3 m (10 ft.)</b>			
SMT022-1	2-level pinwheel double pipe	kit of 1	<b>1,300</b>
SMT022-2	corner mount – 2 7/8" OD x 5'	kit of 1	<b>1,965</b>
<b>Monopole T-Boom Pinwheel 4.5m (15 ft.)</b>			
SMT027-1	2-level pinwheel double pipe	kit of 1	<b>1,509</b>
SMT027-2	3-level pinwheel double pipe	kit of 1	<b>2,288</b>
<b>Monopole T-Boom Pinwheel 6 m (20 ft.)</b>			
SMT016-3	2-level pinwheel double pipe	kit of 1	<b>1,785</b>
SMT016-4	3-level pinwheel double pipe	kit of 1	<b>2,693</b>
<b>Monopole Single Boom Pinwheel 6 m (20 ft.)</b>			
SMT016-1	2-level pinwheel single pipe	kit of 1	<b>1,237</b>
SMT016-2	3-level pinwheel single pipe	kit of 1	<b>1,867</b>

**Note:** Monopole Collar Mounting Clamp Kit is not included and should be ordered separately.



Monopole T-Boom Pinwheel 3 m



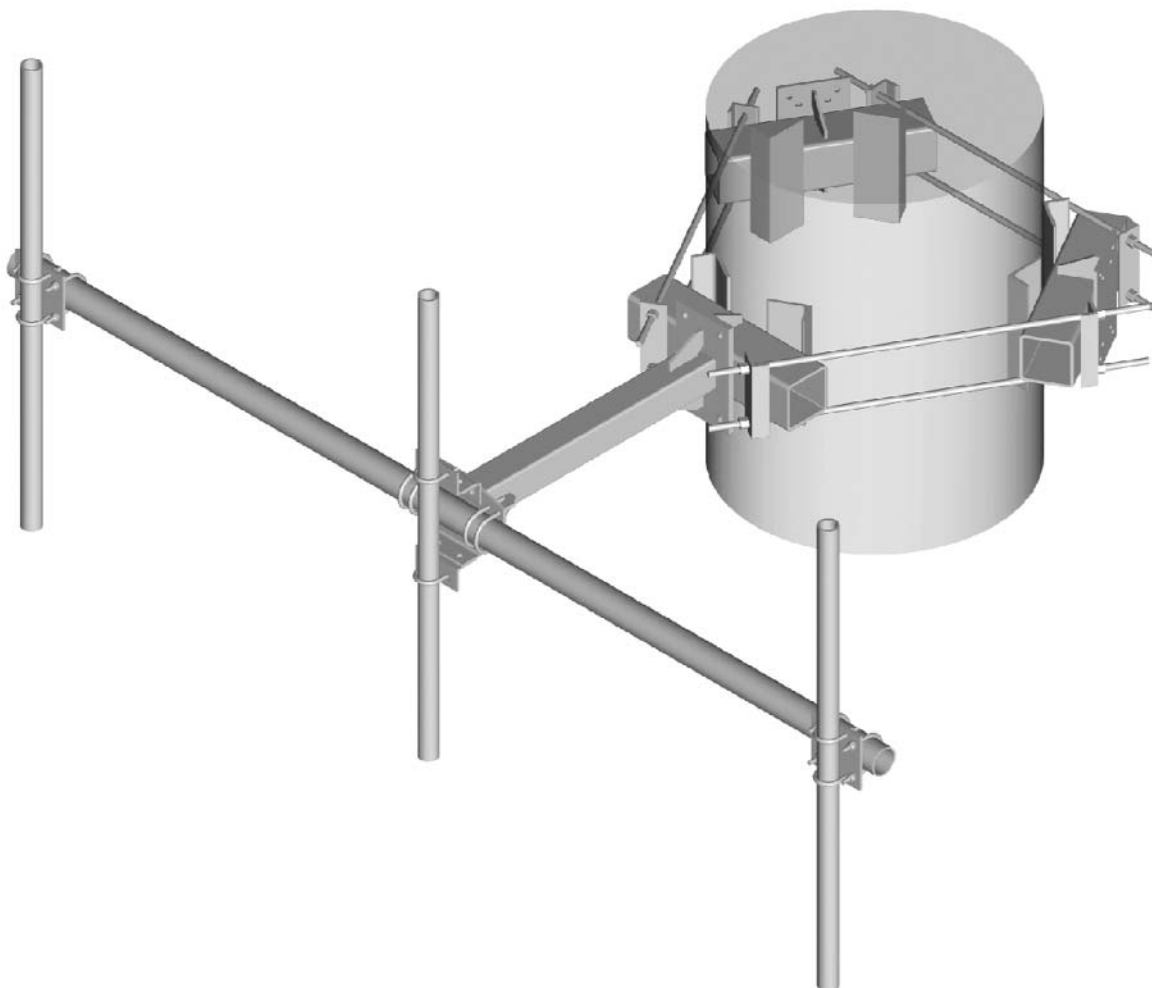
Monopole T-Boom Pinwheel 6 m

## Antenna Mounts

### Monopole Sector Cross-Arm

Like the Monopole T-Boom Pinwheel, the Monopole Sector Cross-Arm utilizes the Monopole Clamp Mount's potential. This mount supports up to three wireless antennas and has a face that measures 10', allowing 5' spacing between the three antennas. Each mount comes complete with three 2 3/8"-by-5' antenna pipes and is available in offsets of 3', 5' and 6' 6". All the mount components are hot-dip galvanized to provide exceptional corrosion protection.

Item #	Description	Qty	Wt #
<b>Monopole Sector Cross-Arm Mount</b>			
SMT026-1	3' stand-off for 3 antennas	kit of 1	<b>185</b>
SMT026-2	5' stand-off for 3 antennas	kit of 1	<b>205</b>
SMT026-3	6' 6" stand-off for 3 antennas	kit of 1	<b>221</b>



**Monopole Sector Cross-Arm**

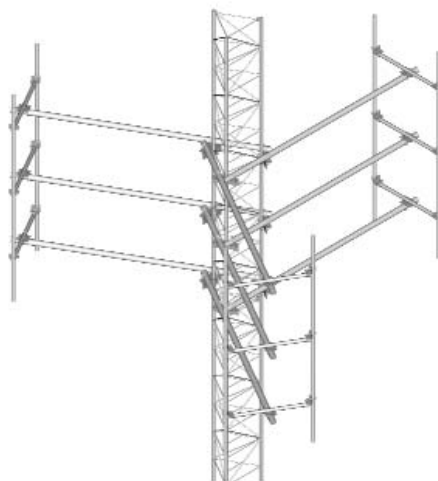
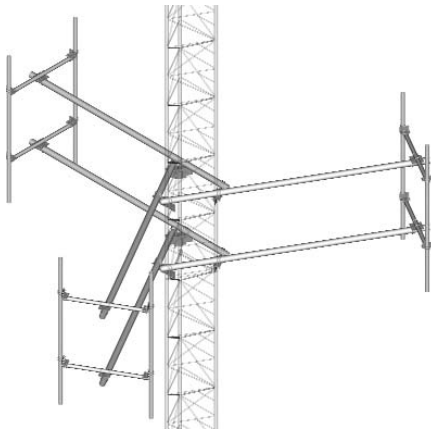


# tower accessories

## Antenna Mounts

### Face-Mounted Pinwheel

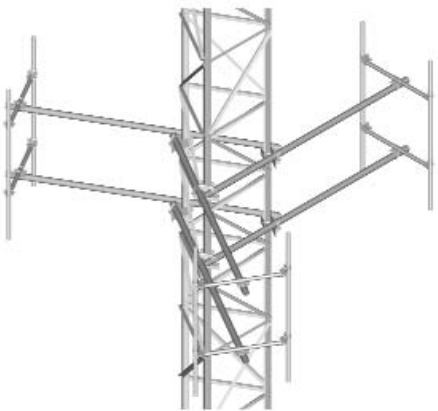
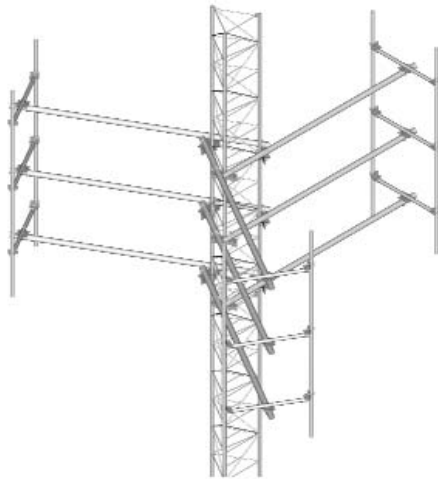
Radian's Face-Mounted Pinwheel antenna mounts offer tough and sturdy construction for a wide variety of antenna requirements. Available in either two- or three-level T-boom configuration, these pinwheel mounts can support a variety of wireless and microwave frames. They come in a variety of boom lengths to suit diverse requirements and can be mounted to masts with round or 60°- angle legs. They are constructed of hot-dip galvanized steel to provide exceptional corrosion protection.



Kit #	Description	Kit Qty	Wt #
<b>Face Mounted Pinwheel – Round Leg Structures</b>			
SMT018-1	2-level T-boom pinwheel – 16' boom round leg 2" to 3" dia	kit of 1	<b>2,058</b>
SMT018-1B	2-level T-boom pinwheel – 15' boom round leg 2" to 3" dia	kit of 1	<b>3,094</b>
SMT018-1C	2-level T-boom pinwheel – 13' boom round leg 2" to 3" dia	kit of 1	<b>2,923</b>
SMT018-1D	2-level T-boom pinwheel – 11' boom round leg 2" to 3" dia	kit of 1	<b>2,752</b>
SMT018-1E	2-level T-boom pinwheel – 10' boom round leg 2" to 3" dia	kit of 1	<b>2,590</b>
SMT018-1F	2-level T-boom pinwheel – 8' boom round leg 2" to 3" dia	kit of 1	<b>2,360</b>
SMT018-1G	2-level T-boom pinwheel – 16' boom round leg 1 1/4" to 2" dia	kit of 1	<b>3,265</b>
SMT018-1H	2-level T-boom pinwheel – 15' boom round leg 1 1/4" to 2" dia	kit of 1	<b>3,085</b>
SMT018-1J	2-level T-boom pinwheel – 13' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,914</b>
SMT018-1K	2-level T-boom pinwheel – 11' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,743</b>
SMT018-1L	2-level T-boom pinwheel – 10' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,581</b>
SMT018-1M	2-level T-boom pinwheel – 8' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,356</b>
SMT018-2	3-level T-boom pinwheel – 16' boom round leg 2" to 3" dia	kit of 1	<b>3,112</b>
SMT018-2B	3-level T-boom pinwheel – 15' boom round leg 2" to 3" dia	kit of 1	<b>3,094</b>
SMT018-2C	3-level T-boom pinwheel – 13' boom round leg 2" to 3" dia	kit of 1	<b>2,923</b>
SMT018-2D	3-level T-boom pinwheel – 11' boom round leg 2" to 3" dia	kit of 1	<b>2,752</b>

continued...

## Antenna Mounts



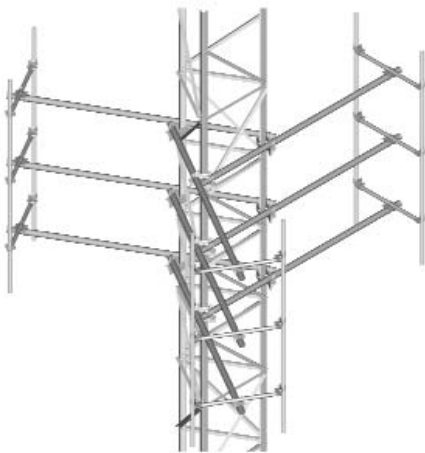
Part #	Description	Qty	Wt #
SMT018-2E	3-level T-boom pinwheel – 10' boom round leg 2" to 3" dia	kit of 1	<b>2,590</b>
SMT018-2F	3-level T-boom pinwheel – 8' boom round leg 2" to 3" dia	kit of 1	<b>2,365</b>
SMT018-2G	3-level T-boom pinwheel – 16' boom round leg 1 1/4" to 2" dia	kit of 1	<b>3,265</b>
SMT018-2H	3-level T-boom pinwheel – 15' boom round leg 1 1/4" to 2" dia	kit of 1	<b>3,085</b>
SMT018-2J	3-level T-boom pinwheel – 13' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,914</b>
SMT018-2K	3-level T-boom pinwheel – 11' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,743</b>
SMT018-2L	3-level T-boom pinwheel – 10' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,581</b>
SMT018-2M	3-level T-boom pinwheel – 8' boom round leg 1 1/4" to 2" dia	kit of 1	<b>2,356</b>
<b>Face Mounted Pinwheel – Angle Leg Structures</b>			
SMT028-1	2-level T-boom pinwheel – 10' boom 60° leg 2 1/2" to 4"	kit of 1	<b>1,896</b>
SMT028-1B	2-level T-boom pinwheel – 11' boom 60° leg 2 1/2" to 4"	kit of 1	<b>2,004</b>
SMT028-1C	2-level T-boom pinwheel – 13' boom 60° leg 2 1/2" to 4"	kit of 1	<b>2,118</b>
SMT028-1D	2-level T-boom pinwheel – 15' boom 60° leg 2 1/2" to 4"	kit of 1	<b>2,232</b>
SMT028-1E	2-level T-boom pinwheel – 16' boom 60° leg 2 1/2" to 4"	kit of 1	<b>2,352</b>
SMT028-1F	2-level T-boom pinwheel – 18' boom 60° leg 2 1/2" to 4"	kit of 1	<b>2,418</b>
SMT028-1G	2-level T-boom pinwheel – 20' boom 60° leg 2 1/2" to 4"	kit of 1	<b>2,604</b>
SMT028-1H	2-level T-boom pinwheel – 10' boom 60° leg 5" to 6"	kit of 1	<b>1,922</b>

continued...

## tower accessories

## Antenna Mounts

Part #	Description	Qty	Wt #
SMT028-1J	2-level T-boom pinwheel - 11' boom 60° leg 5" to 6"	kit of 1	<b>2,030</b>
SMT028-1K	2-level T-boom pinwheel - 13' boom 60° leg 5" to 6"	kit of 1	<b>2,144</b>
SMT028-1L	2-level T-boom pinwheel - 15' boom 60° leg 5" to 6"	kit of 1	<b>2,258</b>
SMT028-1M	2-level T-boom pinwheel - 16' boom 60° leg 5" to 6"	kit of 1	<b>2,378</b>
SMT028-1P	2-level T-boom pinwheel - 18' boom 60° leg 5" to 6"	kit of 1	<b>2,444</b>
SMT028-1R	2-level T-boom pinwheel - 20' boom 60° leg 5" to 6"	kit of 1	<b>2,630</b>
SMT028-3	2-level T-boom pinwheel - 10' boom 8" 60° leg	kit of 1	<b>1,960</b>
SMT028-3B	2-level T-boom pinwheel - 11' boom 8" 60° leg	kit of 1	<b>2,068</b>
SMT028-3C	2-level T-boom pinwheel - 13' boom 8" 60° leg	kit of 1	<b>2,182</b>
SMT028-3D	2-level T-boom pinwheel - 15' boom 8" 60° leg	kit of 1	<b>2,296</b>
SMT028-3E	2-level T-boom pinwheel - 16' boom 8" 60° leg	kit of 1	<b>2,416</b>
SMT028-3F	2-level T-boom pinwheel - 18' boom 8" 60° leg	kit of 1	<b>2,482</b>
SMT028-3G	2-level T-boom pinwheel - 20' boom 8" 60° leg	kit of 1	<b>2,668</b>
SMT028-2	3-level T-boom pinwheel - 10' boom 60° leg 2 1/2" to 4"	kit of 1	<b>2,844</b>
SMT028-2B	3-level T-boom pinwheel - 11' boom 60° leg 2 1/2" to 4"	kit of 1	<b>3,006</b>
SMT028-2C	3-level T-boom pinwheel - 13' boom 60° leg 2 1/2" to 4"	kit of 1	<b>3,177</b>
SMT028-2D	3-level T-boom pinwheel - 15' boom 60° leg 2 1/2" to 4"	kit of 1	<b>3,348</b>
SMT028-2E	3-level T-boom pinwheel - 16' boom 60° leg 2 1/2" to 4"	kit of 1	<b>3,528</b>
SMT028-2F	3-level T-boom pinwheel - 18' boom 60° leg 2 1/2" to 4"	kit of 1	<b>3,627</b>
SMT028-2G	3-level T-boom pinwheel - 20' boom 60° leg 2 1/2" to 4"	kit of 1	<b>3,906</b>



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## Antenna Mounts

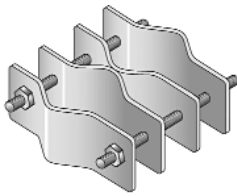
Part #	Description	Qty	Wt #
SMT028-2H	3-level T-boom pinwheel – 10' boom 60° leg 5" to 6"	kit of 1	<b>2,884</b>
SMT028-2J	3-level T-boom pinwheel – 11' boom 60° leg 5" to 6"	kit of 1	<b>3,046</b>
SMT028-2K	3-level T-boom pinwheel – 13' boom 60° leg 5" to 6"	kit of 1	<b>3,217</b>
SMT028-2L	3-level T-boom pinwheel – 15' boom 60° leg 5" to 6"	kit of 1	<b>3,388</b>
SMT028-2M	3-level T-boom pinwheel – 16' boom 60° leg 5" to 6"	kit of 1	<b>3,568</b>
SMT028-2P	3-level T-boom pinwheel – 18' boom 60° leg 5" to 6"	kit of 1	<b>3,667</b>
SMT028-2R	3-level T-boom pinwheel – 20' boom 60° leg 5" to 6"	kit of 1	<b>3,946</b>
SMT028-3H	3-level T-boom pinwheel – 10' boom 8" 60° leg	kit of 1	<b>2,960</b>
SMT028-3J	3-level T-boom pinwheel – 11' boom 8" 60° leg	kit of 1	<b>3,122</b>
SMT028-3K	3-level T-boom pinwheel – 13' boom 8" 60° leg	kit of 1	<b>3,293</b>
SMT028-3L	3-level T-boom pinwheel – 15' boom 8" 60° leg	kit of 1	<b>3,464</b>
SMT028-3M	3-level T-boom pinwheel – 16' boom 8" 60° leg	kit of 1	<b>3,644</b>
SMT028-3P	3-level T-boom pinwheel – 18' boom 8" 60° leg	kit of 1	<b>3,743</b>
SMT028-3R	3-level T-boom pinwheel – 20' boom 8" 60° leg	kit of 1	<b>4,022</b>

## tower accessories

## Antenna Mounts

**Parallel Pipe-to-Pipe Clamp**

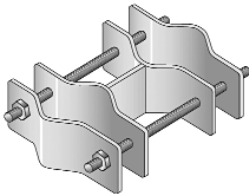
The Parallel Pipe-to-Pipe Clamp is a very effective solution when mounting two vertical pipes in close proximity to one another. This clamp is available in two versions. One accepts pipes ranging from 1 1/2" (38 mm) to 2 7/8" (73 mm) OD on both sides and a second that supports 4 1/2" (114 mm) OD pipes or round members. Each clamp is hot-dip galvanized to ensure maximum corrosion protection.



Kit #	Description	Qty	Wt #
SMT010-1	parallel pipe-to-pipe 1 1/2" to 2 7/8" OD	each	5
SMT010-2	parallel pipe-to-pipe 4 1/2" to 4 1/2" OD	each	10

**Parallel Stand-off Pipe-to-Pipe Clamp**

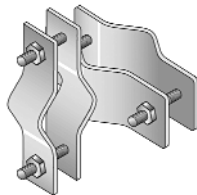
The Parallel Stand-off Pipe-to-Pipe Clamp is a very efficient way of mounting two vertical pipes in close proximity to one another while standing off one pipe 4" (102 mm) to allow clearance for transmission lines or other structural members. This clamp accepts pipes ranging from 1 1/2" (38 mm) to 3" (76 mm) OD on both sides. Each clamp is hot-dip galvanized to ensure maximum corrosion protection.



Kit #	Description	Qty	Wt #
SMT012	parallel stand-off pipe-to-pipe 1 1/2" to 3" OD	each	9

**Perpendicular Pipe-to-Pipe Clamp**

The Perpendicular Pipe-to-Pipe Clamp is a very versatile solution when mounting two pipes at right angles to one another. This clamp accepts pipes ranging from 1 1/2" (38 mm) to 3" (76 mm) OD in both directions. Each clamp is hot-dip galvanized to endure the harshest of conditions.



Kit #	Description	Qty	Wt #
SMT011	perpendicular pipe-to-pipe 1 1/2" to 3" OD	each	8

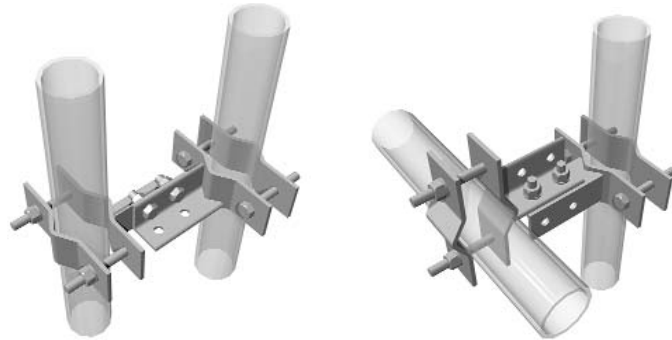


## Antenna Mounts

### Combination Clamp

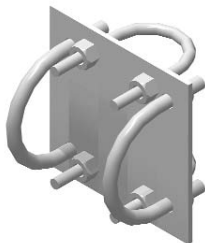
The Combination Clamp is a versatile mount capable of supporting pipes ranging from 1 1/2" (38 mm) to 2 7/8" (73 mm) OD. Its unique design allows you to mount pipes or other round members in either a parallel or perpendicular arrangement. This feature, with its ability to provide 6" (152 mm) of clearance for transmission lines or other tower structural members, gives the clamp great flexibility. Each clamp is hot-dip galvanized to ensure maximum corrosion protection.

Kit #	Description	Qty	Wt #
SMT006	combination clamp 1 1/2" to 2 7/8" pipe	each	8



### Crossover Plate Pipe Clamp

Crossover Plate Pipe Clamp Kits are used to connect two pipes at 90° to each other. Each kit contains a connection plate and four U-bolt assemblies. All parts are hot-dip galvanized to ensure maximum corrosion protection.



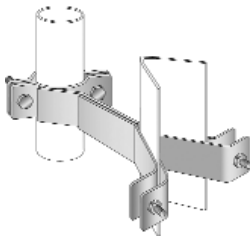
Kit #	Description	Qty	Wt #
SMT013-1	1 7/8" (48 mm) to 1 7/8" (48 mm) pipe	each	4
SMT013-2	1 7/8" (48 mm) to 2 3/8" (60 mm) pipe	each	4
SMT013-3	1 7/8" (48 mm) to 2 7/8" (73 mm) pipe	each	6
SMT013-4	2 3/8" (60 mm) to 2 3/8" (60 mm) pipe	each	4
SMT013-5	2 3/8" (60 mm) to 2 7/8" (73 mm) pipe	each	4
SMT013-6	2 3/8" (60 mm) to 3 1/2" (89 mm) pipe	each	4
SMT013-7	2 7/8" (73 mm) to 2 7/8" (73 mm) pipe	each	6
SMT013-8	2 7/8" (73 mm) to 4 1/2" (114 mm) pipe	each	9
SMT013-9	3 1/2" (89 mm) to 3 1/2" (89 mm) pipe	each	7
SMT013-10	3 1/2" (89 mm) to 4 1/2" (114 mm) pipe	each	7
SMT013-11	4 1/2" (114 mm) to 4 1/2" (114 mm) pipe	each	7

## tower accessories

## Antenna Mounts

**Parallel Pipe Angle Leg Clamp**

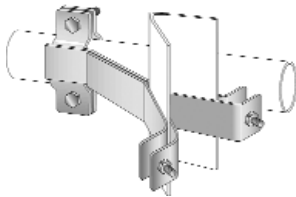
Parallel Pipe Angle Leg Clamp is capable of supporting a pipe parallel from 2" (51 mm) to 8" (203 mm) 60° angle tower legs. This design can accommodate pipes ranging in size from 1 1/2" (38 mm) to 3 1/2" (89 mm) OD while standing them 4" (100 mm) away from angle tower legs. Each clamp is hot-dip galvanized for optimum corrosion protection.



Kit #	Description	Qty	Wt #
SMT008-2	parallel angle clamp 2" to 4" legs	each	9
SMT009-2	parallel angle clamp 5" to 8" legs	each	9

**Horizontal Pipe Angle Leg Clamp**

This practical clamp is capable of supporting a pipe at right angles to a 60° angle tower leg. This design can accommodate pipes ranging in size from 1 1/2" (38 mm) to 3 1/2" (89 mm) OD and angle tower legs from 2" (51 mm) to 8" (203 mm). Each clamp is hot-dip galvanized for optimum corrosion protection.



Kit #	Description	Qty	Wt #
SMT008-1	horizontal pipe angle clamp 2" to 4" legs	each	9
SMT009-1	horizontal pipe angle clamp 5" to 8" legs	each	9

**Angle Leg Pipe Clamp**

This clamp supports a pipe parallel to a 90° angle tower leg. The design can accommodate pipes ranging in size from 1 1/2" (38 mm) to 3 1/2" (89 mm) OD and angle tower legs from 2" (51 mm) to 4" (102 mm). Each clamp is hot-dip galvanized.



Kit #	Description	Qty	Wt #
SMT007	angle leg pipe clamp 92" to 4" legs	each	7

## Antenna Mounts

### Round Leg Clamp Mount

The Round Leg Clamp Mount is designed to connect the round tower legs or support members with a large range of mounting pipes. This versatile design is capable of mounting to round members ranging from 1 1/2" (38 mm) to 7 1/2" (190 mm) in diameter.



Kit #	Description	Qty	Wt #
SMT001-1	round leg clamp mount for 1 1/2" to 3" legs	kit of 2	<b>37</b>
SMT001-2	round leg clamp mount for 3 1/16" to 4 1/2" legs	kit of 2	<b>55</b>
SMT001-3	round leg clamp mount for 4 5/8" to 6" legs	kit of 2	<b>77</b>
SMT001-4	round leg clamp mount for 6 1/8" to 7 1/2" legs	kit of 2	<b>97</b>

**Note:** Each kit comes complete with all the necessary material and hardware to attach it to the structure. The hardware for attaching the optional pipe mounts is included with the Pipe Mounting Kits. All components are hot-dip galvanized to ensure maximum corrosion protection.

### Round Tapered Leg Clamp Mount

The distinctive design of this Clamp Mount allows it to mount to round tapered legs with a taper ranging from 3.25° to 4° with a maximum spacing of 5' (1.5 m) between clamps. This versatile design is capable of mounting to members ranging from 1 1/2" (38 mm) to 7 1/2" (190 mm) in diameter and is capable of supporting a large range of mounting pipes.



Kit #	Description	Qty	Wt #
SMT005-1	round tapered leg clamp mount for 1 1/2" to 3" legs	kit of 2	<b>46</b>
SMT005-2	round tapered leg clamp mount for 3 1/16" to 4 1/2" legs	kit of 2	<b>64</b>
SMT005-3	round tapered leg clamp mount for 4 5/8" to 6" legs	kit of 2	<b>86</b>
SMT005-4	round tapered leg clamp mount for 6 1/8" to 7 1/2" legs	kit of 2	<b>106</b>

**Note:** Each kit comes complete with all the necessary material and hardware to attach it to the structure. The hardware for attaching the optional pipe mounts is included with the Pipe Mounting Kits. All components are hot-dip galvanized to ensure maximum corrosion protection.

## tower accessories

## Antenna Mounts

**Corner Angle Leg Clamp Mount**

The practical design of the Corner Angle Leg Clamp Mount allows the platform to attach pipe mounts of various sizes to a wide range of 60° angle tower legs. All components of the Corner Angle Leg Clamp are manufactured from hot-dip galvanized steel to guarantee long-term protection against the harshest weather conditions.



Kit #	Description	Qty	Wt #
SMT003-1	corner angle leg clamp 2 1/2" to 4" 60° legs	kit of 2	<b>79</b>
SMT003-2	corner angle leg clamp 5" to 6" 60° legs	kit of 2	<b>93</b>
SMT003-3	corner angle leg clamp 8" 60° legs	kit of 2	<b>112</b>

**Note:** All assembly hardware for fastening the pipe mount to the clamp is supplied with the Pipe Mount Kit.

**Corner Tapered Angle Leg Clamp Mount**

The Corner Tapered Angle Leg Clamp Mount has all the benefits and flexibility of the corner angle leg clamp, while giving you the added ability to mount to 60° tower legs with a taper ranging from 3.25° to 4° with a maximum spacing of 5' (1.5 m) between clamps. Each mount is capable of supporting pipe mounts of various sizes.



Kit #	Description	Qty	Wt #
SMT004-1	corner tapered angle leg clamp 2 1/2" to 4" 60° legs	kit of 2	<b>85</b>
SMT004-2	corner tapered angle leg clamp 5" to 6" 60° legs	kit of 2	<b>99</b>
SMT004-3	corner tapered angle leg clamp 8" 60° legs	kit of 2	<b>118</b>

**Note:** All assembly hardware for fastening the pipe mount to the clamp is supplied with the Pipe Mount Kit. All components of the mount are hot-dip galvanized to ensure maximum corrosion protection.

## Antenna Mounts

### Pipe Mount

Pipe Mounts are designed to make possible vertical attachment of antennas, ice guards or other items to straight or tapered tower legs. The mounts come in several diameters and a range of lengths to suit various requirements. Each mount is used in conjunction with either the Round Leg or Angle Leg Clamp Kits. All components are hot-dip galvanized to ensure maximum corrosion protection.



Kit #	Description	Qty	Wt #
SMT002-1	pipe mount 2 3/8" OD x 6'	each	<b>35</b>
SMT002-2	pipe mount 2 3/8" OD x 8'	each	<b>43</b>
SMT002-3	pipe mount 2 3/8" OD x 10'	each	<b>48</b>
SMT002-4	pipe mount 2 7/8" OD x 6'	each	<b>59</b>
SMT002-5	pipe mount 2 7/8" OD x 8'	each	<b>76</b>
SMT002-6	pipe mount 2 7/8" OD x 10'	each	<b>92</b>
SMT002-7	pipe mount 4 1/2" OD x 6'	each	<b>72</b>
SMT002-8	pipe mount 4 1/2" OD x 8'	each	<b>87</b>
SMT002-9	pipe mount 4 1/2" OD x 10'	each	<b>109</b>



# tower accessories

## Antenna Mounts

### Plain Pipe

Plain Pipe is available in sizes and lengths listed. All pipes are HSS (hollow structural steel) and are hot-dip galvanized for maximum corrosion protection.

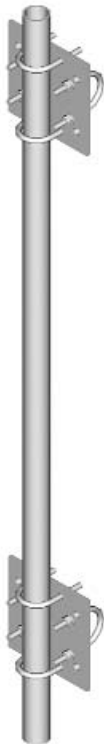


Kit #	Description	Qty	Wt #
91079A	2 3/8" (60 mm) OD x 6'	each	<b>19</b>
91079J	2 3/8" (60 mm) OD x 8'	each	<b>26</b>
91079B	2 3/8" (60 mm) OD x 10'	each	<b>31</b>
91079F	2 3/8" (60 mm) OD x 12'	each	<b>35</b>
91079L	2 3/8" (60 mm) OD x 14'	each	<b>53</b>
91079D	2 3/8" (60 mm) OD x 16'	each	<b>52</b>
91079M	2 3/8" (60 mm) OD x 18'	each	<b>64</b>
91079C	2 3/8" (60 mm) OD x 20'	each	<b>63</b>
91080A	2 7/8" (73 mm) OD x 6'	each	<b>42</b>
91080G	2 7/8" (73 mm) OD x 8'	each	<b>59</b>
91080B	2 7/8" (73 mm) OD x 10'	each	<b>69</b>
91080N	2 7/8" (73 mm) OD x 12'	each	<b>71</b>
91080M	2 7/8" (73 mm) OD x 14'	each	<b>108</b>
91080E	2 7/8" (73 mm) OD x 16'	each	<b>113</b>
91080T	2 7/8" (73 mm) OD x 18'	each	<b>126</b>
91080C	2 7/8" (73 mm) OD x 20'	each	<b>138</b>
91081A	4 1/2" (114 mm) OD x 6'	each	<b>54</b>
91081E	4 1/2" (114 mm) OD x 8'	each	<b>68</b>
91082B	4 1/2" (114 mm) OD x 10'	each	<b>118</b>
91082E	4 1/2" (114 mm) OD x 12'	each	<b>136</b>
91082N	4 1/2" (114 mm) OD x 14'	each	<b>170</b>
91082J	4 1/2" (114 mm) OD x 16'	each	<b>186</b>
91082R	4 1/2" (114 mm) OD x 18'	each	<b>205</b>
91082C	4 1/2" (114 mm) OD x 20'	each	<b>236</b>

## Antenna Mounts

### Crossover Plate Pipe Mount

The Crossover Plate Pipe Mounts are intended to allow the vertical connection of antennas, ice guards or other items to 2 7/8" (73 mm) or 4 1/2" (114 mm) OD horizontal pipes or round structural members. This mount takes advantage of the versatile crossover plates, which allow two pipes to be fastened together at right angles. In order to suit your exact application requirements, the mount is available in three pipe diameters and three length options. All components and hardware are hot-dip galvanized to ensure optimal corrosion resistance.



Kit #	Description	Qty	Wt #
SMT014-1	2 3/8" OD x 6' vert. pipe mount for 2 7/8" OD horiz. pipe	each	<b>26</b>
SMT014-2	2 3/8" OD x 6' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>35</b>
SMT014-3	2 3/8" OD x 8' vert. pipe mount for 2 7/8" OD horiz. pipe	each	<b>34</b>
SMT014-4	2 3/8" OD x 8' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>43</b>
SMT014-5	2 3/8" OD x 10' vert. pipe mount for 2 7/8" OD horiz. pipe	each	<b>39</b>
SMT014-6	2 3/8" OD x 10' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>48</b>
SMT014-7	2 7/8" OD x 6' vert. pipe mount for 2 7/8" OD horiz. pipe	each	<b>54</b>
SMT014-8	2 7/8" OD x 6' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>59</b>
SMT014-9	2 7/8" OD x 8' vert. pipe mount for 2 7/8" OD horiz. pipe	each	<b>71</b>
SMT014-10	2 7/8" OD x 8' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>76</b>
SMT014-11	2 7/8" OD x 10' vert. pipe mount for 2 7/8" OD horiz. pipe	each	<b>81</b>
SMT014-12	2 7/8" OD x 10' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>86</b>
SMT014-13	4 1/2" OD x 6' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>76</b>
SMT014-14	4 1/2" OD x 8' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>90</b>
SMT014-15	4 1/2" OD x 10' vert. pipe mount for 4 1/2" OD horiz. pipe	each	<b>112</b>

# tower accessories

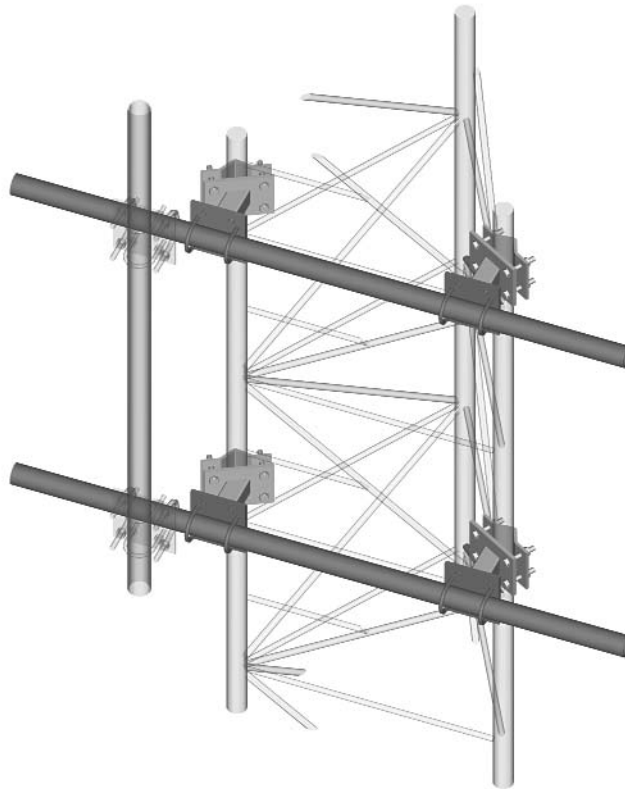
## Antenna Mounts

### Face-Mounted Wireless Support Frame – Round Leg Structures

The Face-Mounted Wireless Support Frame is a versatile mounting system, which provides excellent support for sector antennas. Its unique design stands the frame 7 1/2" (190 mm) away from the face of the tower, allowing transmission lines to run unobstructed behind the mount. The frame's 2 7/8" (73 mm) OD mounting arms are available in 6', 8', 10' & 13' optional lengths to accommodate a wide range of tower face sizes and antenna separation requirements. The round leg version can mount to 1 1/2" (38 mm) to 3" (76 mm) diameter legs. This mount is capable of supporting up to a maximum of three 2 7/8" (73 mm) OD crossover plate pipe mounts, which must be ordered separately. All parts and components of the Face-Mounted Wireless Support Frame are hot-dip galvanized to provide corrosion protection in the harshest environmental conditions.

Kit #	Description	Qty	Wt #
SAM010-1	round leg face-mounted wireless support frame – 6' mounting arm 1 1/2" to 3" legs	each	200
SAM010-2	round leg face-mounted wireless support frame – 8' mounting arm 1 1/2" to 3" legs	each	234
SAM010-3	round leg face-mounted wireless support frame – 10' mounting arm 1 1/2" to 3" legs	each	254
SAM010-4	round leg face-mounted wireless support frame – 13' mounting arm 1 1/2" to 3" legs	each	258

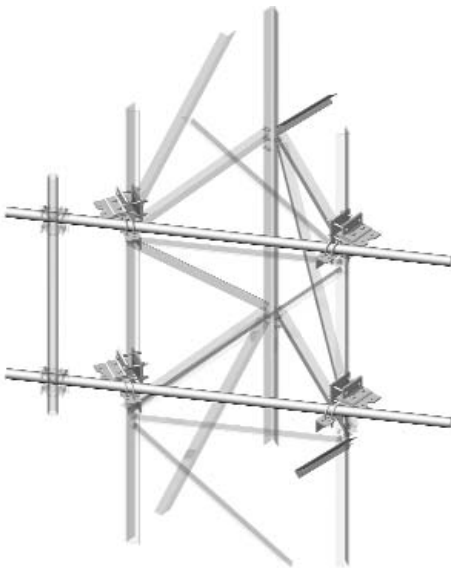
**Note:** Vertical Pipe Mount is not included. See page 65.



## Antenna Mounts

### Face-Mounted Wireless Support Frame – Angle Leg Structures

The Face-Mounted Wireless Support Frame is a versatile mounting system, which provides excellent support for sector antennas. Its unique design stands the frame 7 1/2" (190 mm) away from the face of the tower allowing transmission lines to run unobstructed behind the mount. The frame's 2 7/8" (73 mm) OD mounting arms are available in 6', 8', 10' & 13' optional lengths to accommodate a wide range of tower face sizes and antenna separation requirements. The angle leg version can accommodate 60° tower legs from 2 1/2" (64 mm) to 6" (152 mm) in diameter. This mount is capable of supporting up to a maximum of three 2 7/8" (73 mm) OD crossover plate pipe mounts, which are ordered separately. All parts and components of the Face-Mounted Wireless Support Frame are hot-dip galvanized to provide corrosion protection in the harshest environmental conditions.



Kit #	Description	Qty	Wt #
SAM011-1	angle leg face-mounted frame – 6' mounting arm 2 1/2" to 4" leg	each	<b>285</b>
SAM011-2	angle leg face-mounted frame – 8' mounting arm 2 1/2" to 4" leg	each	<b>319</b>
SAM011-3	angle leg face-mounted frame – 10' mounting arm 2 1/2" to 4" leg	each	<b>339</b>
SAM011-4	angle leg face-mounted frame – 13' mounting arm 2 1/2" to 4" leg	each	<b>343</b>
SAM011-5	angle leg face-mounted frame – 6' mounting arm 5" to 6" leg	each	<b>313</b>
SAM011-6	angle leg face-mounted frame – 8' mounting arm 5" to 6" leg	each	<b>347</b>
SAM011-7	angle leg face-mounted frame – 10' mounting arm 5" to 6" leg	each	<b>367</b>
SAM011-8	angle leg face-mounted frame – 13' mounting arm 5" to 6" leg	each	<b>371</b>

**Note:** Vertical Pipe Mount is not included. See page 65.

# tower accessories

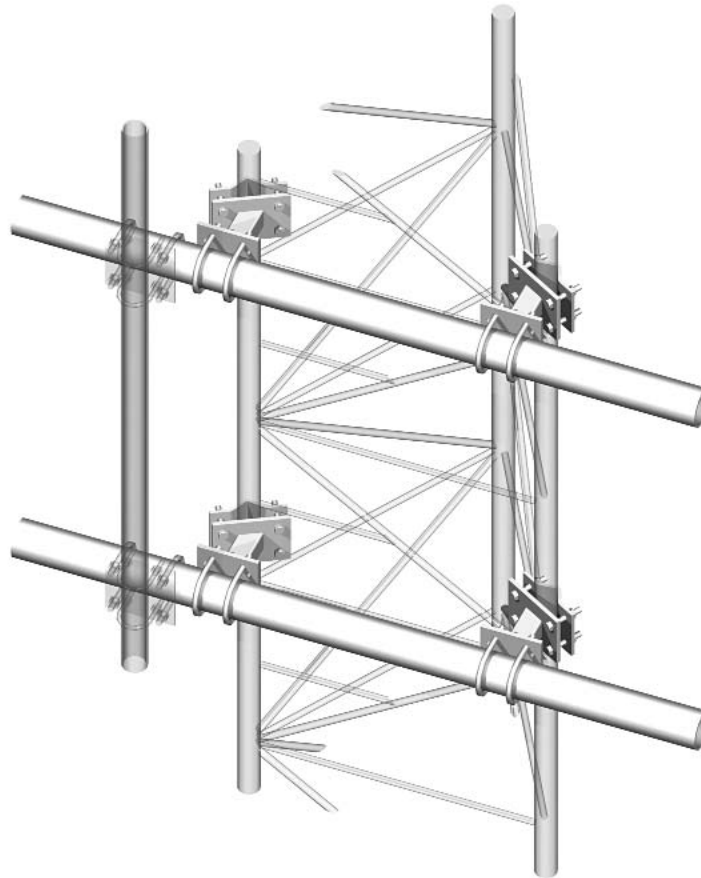
## Antenna Mounts

### Face-Mounted Dish Support Frame – Round Leg Structures

The Face-Mounted Dish Support Frame is an excellent and versatile solution when mounting a dish on the face of a vertical structure is necessary. Its unique design stands the frame 7 1/2" (190 mm) away from the face of the tower, allowing transmission lines to run unobstructed behind the mount. The round leg version can accommodate legs from 1 1/2" (38 mm) to 3" (76 mm) in diameter. The frame's 4 1/2" (114 mm) OD mounting arms are available in 6', 8', 10' & 13' optional lengths to accommodate a wide range of tower face sizes. The mount is capable of supporting two 4 1/2" (114 mm) OD crossover plate pipe mounts, which are ordered separately. All parts and components of the mount are hot-dip galvanized to provide corrosion protection in the harshest environmental conditions.

Kit #	Description	Qty	Wt #
SAM009-1	round leg dish support frame – 6' mounting arm 1 1/2" to 3" legs	each	<b>206</b>
SAM009-2	round leg dish support frame – 8' mounting arm 1 1/2" to 3" legs	each	<b>240</b>
SAM009-3	round leg dish support frame – 10' mounting arm 1 1/2" to 3" legs	each	<b>240</b>
SAM009-4	round leg dish support frame – 13' mounting arm 1 1/2" to 3" legs	each	<b>264</b>

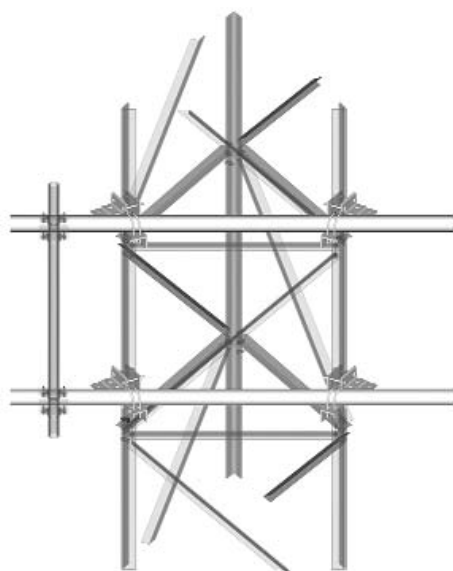
**Note:** Vertical Pipe Mount is not included. See page 65.



## Antenna Mounts

### Face-Mounted Dish Support Frame – Angle Leg Structures

The Face-Mounted Dish Support Frame is an excellent and versatile solution when mounting a dish on the face of a vertical structure is necessary. Its unique design stands the frame 7 1/2" (190 mm) away from the face of the tower, allowing transmission lines to run unobstructed behind the mount. The angle leg version can accommodate 60° tower legs from 2 1/2" (64 mm) to 6" (152 mm). The frame's 4 1/2" (114 mm) OD mounting arms are available in 6', 8', 10' & 13' optional lengths to accommodate a wide range of tower face sizes. Each mount is capable of supporting two 4 1/2" (114 mm) OD crossover plate pipe mounts, which are ordered separately. All components are hot-dip galvanized to provide maximum corrosion protection.



Kit #	Description	Qty	Wt #
SAM012-1	angle leg face-mounted dish frame – 6' mounting arm 2 1/2" to 4" leg	each	324
SAM012-2	angle leg face-mounted dish frame – 8' mounting arm 2 1/2" to 4" leg	each	352
SAM012-3	angle leg face-mounted dish frame – 10' mounting arm 2 1/2" to 4" leg	each	452
SAM012-4	angle leg face-mounted dish frame – 13' mounting arm 2 1/2" to 4" leg	each	488
SAM012-5	angle leg face-mounted dish frame – 6' mounting arm 5" to 6" leg	each	352
SAM012-6	angle leg face-mounted dish frame – 8' mounting arm 5" to 6" leg	each	380
SAM012-7	angle leg face-mounted dish frame – 10' mounting arm 5" to 6" leg	each	480
SAM012-8	angle leg face-mounted dish frame – 13' mounting arm 5" to 6" leg	each	516

**Note:** Vertical Pipe Mount is not included. See page 65.



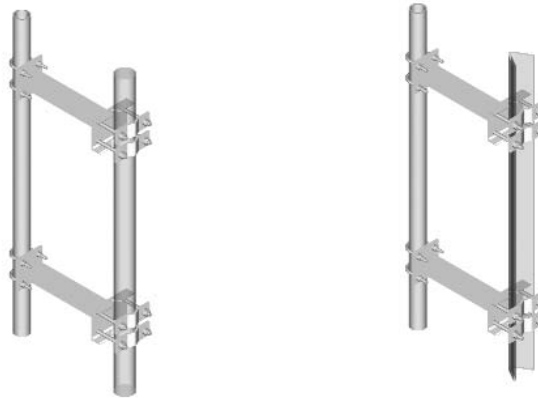
# tower accessories

## Antenna Mounts

### Stand-off Mounts

Stand-off Mounts are used for supporting omnidirectional antennas that require separation from the tower structure. Each mount is complete with 2 7/8" (73 mm) OD by 6' (1,830 mm) long pipe and comes in offsets of 18", 24", and 36" (457 mm, 610 mm, and 914 mm). The mounts can be attached to round legs ranging from 1 1/2" to 4 1/2" (38 mm to 114 mm) OD, and to 60° tower legs from 2 1/2" (64 mm) to 4" (102 mm).

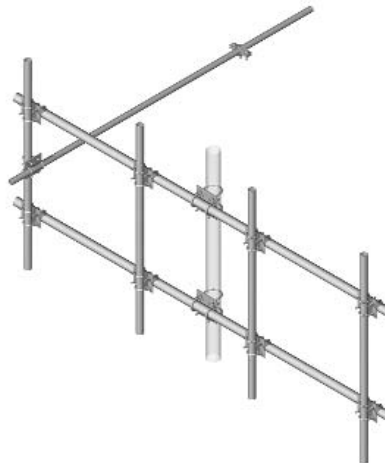
Kit #	Description	Qty	Wt #
SAM013-1	18" (457 mm) stand-off mount	each	<b>96</b>
SAM013-2	24" (610 mm) stand-off mount	each	<b>104</b>
SAM013-3	36" (914 mm) stand-off mount	each	<b>118</b>



### 13' Wireless Pipe Frame

The Wireless Pipe Frame is a versatile mount that provides dependable support when mounting sector antennas in a wireless system. The frame supports four panel antennas with a maximum center-to-center of 13' (3.9 m) and is designed to mount directly to a 4 1/2" (114 mm) round tower leg or 4 1/2" OD support member. Each mount comes complete with 4 antenna mounting pipes in lengths of 6' or 8'. A 1 7/8" (48 mm) OD strut arm is provided to stabilize the frame in wind and ice conditions. All components are hot-dip galvanized to ensure the utmost protection.

Kit #	Description	Qty	Wt #
SAM005-1	13' wireless pipe frame c/w 6' (1,830 mm) pipes	each	<b>333</b>
SAM005-2	13' wireless pipe frame c/w 8' (2,500 mm) pipes	each	<b>361</b>



## Antenna Mounts

### 5' Wireless Pipe Frame

This frame provides three 2 3/8", 8'-long pipes that mount on either 4 1/2" round leg or 4 1/2" OD members. The vertical pipes have a center-to-center dimension of approximately 2' 6". All components are hot-dip galvanized.

Kit #	Description	Qty	Wt #
SAM021-1	5' wireless pipe frame c/w (3) 2 3/8" x 8' antenna pipes	kit of 1	<b>217</b>



### Sector Frame

Similar to the Wireless Pipe Frame, the 12' Sector Frame is designed to support three or four panels on 2 3/8" round HSS vertical 6' mounts while providing a stand-off from the mast leg. It can be installed on leg sizes from 1 1/2" to 4 1/2" in diameter or 60° sizes from 2 1/2" to 4". Two side struts are provided to support the frame and minimize lateral movements under site loading conditions. These are constructed of hot-dip galvanized steel to provide exceptional corrosion protection.

Kit #	Description	Qty	Wt #
SAM024-1	12' sector frame c/w 3 antenna pipes - 1 1/2" to 4 1/2" rnd legs or 60° leg 2 1/2" to 4"	kit of 1	<b>306</b>
SAM024-2	12' sector frame c/w 4 antenna pipes - 1 1/2" to 4 1/2" rnd legs or 60° leg 2 1/2" to 4"	kit of 1	<b>340</b>



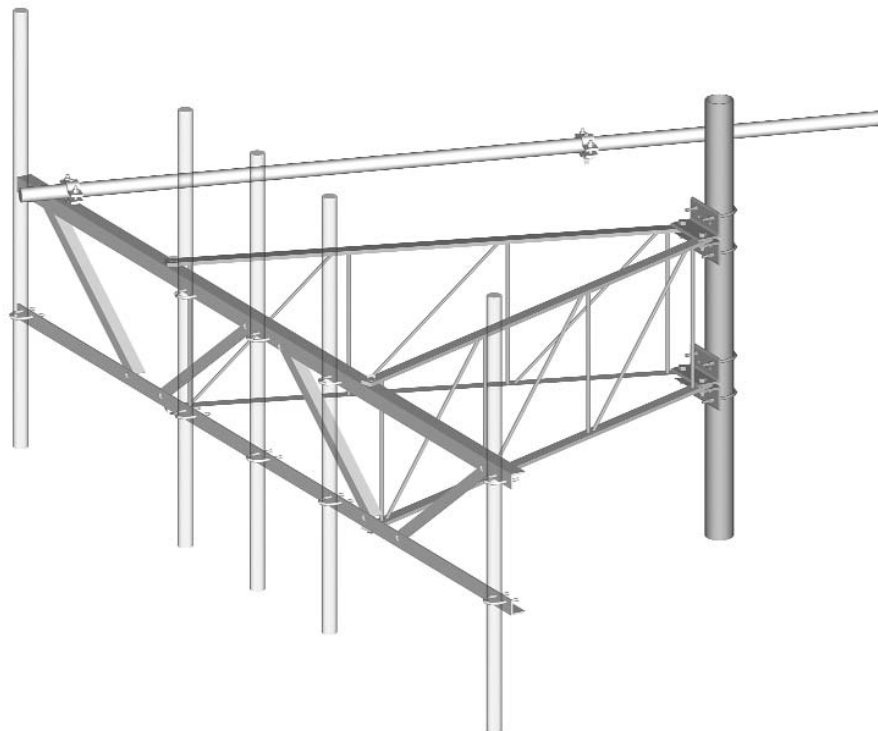
# tower accessories

## Antenna Mounts

### Wireless Stand-off Antenna Frame

The Wireless Stand-off Frame Mount (inverted hinge mount) provides reliable support for an entire sector of wireless antennas while standing the array 5' away from the support structure. This design makes the mount ideal for co-locate applications on guyed or self-supporting structures. The frame features a 12' (3.8 m) face size for optimal antenna spacing and capacity. The Wireless Stand-off Frame is capable of supporting 2 3/8" (60 mm) OD x 6' antenna mounting pipes in 2, 3 & 4 pipe arrangements. These pipes, which are purchased separately, are directly U-bolted to the frame at specific positions. The frame mounts to either a 2 7/8" (73 mm) or a 4 1/2" (114 mm) OD vertical pipe or leg. A wide range of mounting kits is available to suit both straight and tapered structures in round leg and 3 or 4 angle leg configurations. A strut arm is included with each mount (two) to provide stability in wind and ice conditions. All components of the mount are hot-dip galvanized to ensure maximum corrosion protection.

Kit #	Description	Qty	Wt #
<b>5' Wireless Stand-off Frame</b>			
SAM001-1	wireless stand-off frame for 2 7/8" (73 mm) OD pipe	each	<b>412</b>
SAM001-2	wireless stand-off frame for 4 1/2" (114 mm) OD pipe	each	<b>412</b>
<b>Antenna Mounting Pipes</b>			
SAM001-3	2 3/8" OD x 6' c/w U-bolts	each	<b>20</b>

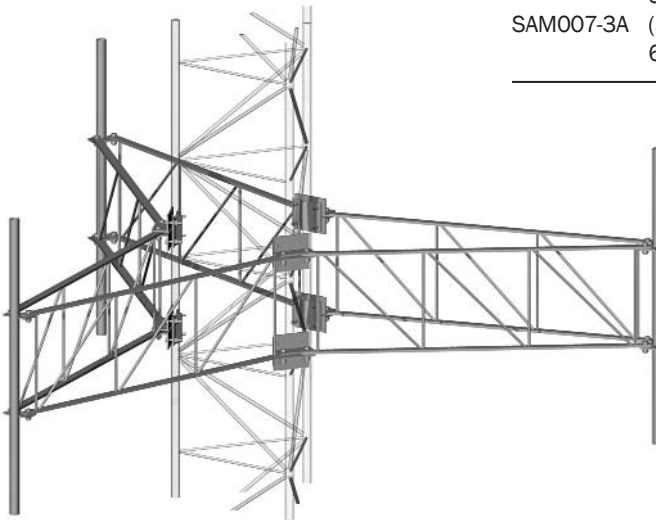


**5' Wireless Stand-off Frame**

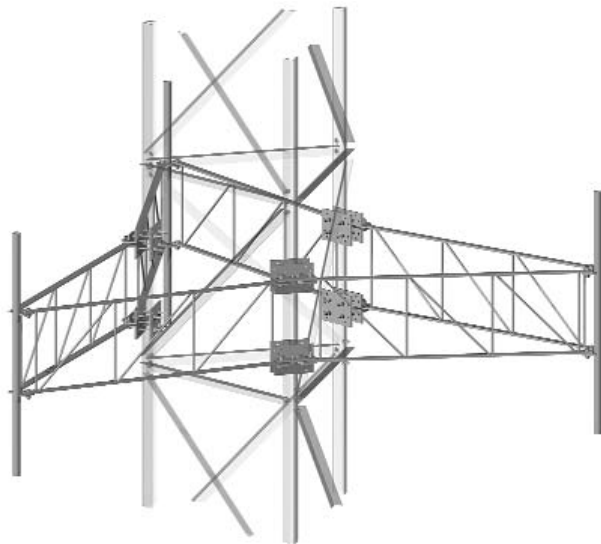
## Antenna Mounts

### 6' Wireless Antenna Hinge Mount

The 6' (1.8 m) Wireless Antenna Hinge Mount provides a platform for locating cellular, PCS or trunking antennas away from the tower face. The 6' dimension represents the mounting frame length; the actual stand-off distance that the mounting pipe is away from the tower will depend upon the face width of the structure. The hinge mount's versatile design makes it capable of mounting to vertical round tower legs from 1 1/2" (38 mm) to 3" (76 mm) in diameter, 60° tower legs from 2 1/2" (64 mm) to 8" (203 mm) and 90° angle tower legs from 2 1/2" (64 mm) to 6" (152 mm). The antenna mount comes complete with a 2 3/8" OD (60 mm) x 6' (1,830 mm) mounting pipe, the optimal size for mounting collinear omni or panel directional antennas. These mounts can be purchased in kits of 1, 2, or 3 arms. All parts of the Wireless Antenna Hinge Mount are hot-dip galvanized to provide corrosion protection in the harshest environmental conditions.



**6' Wireless Hinge Mount – Vertical Round Legs**



**6' Wireless Hinge Mount – Vertical Angle Legs**

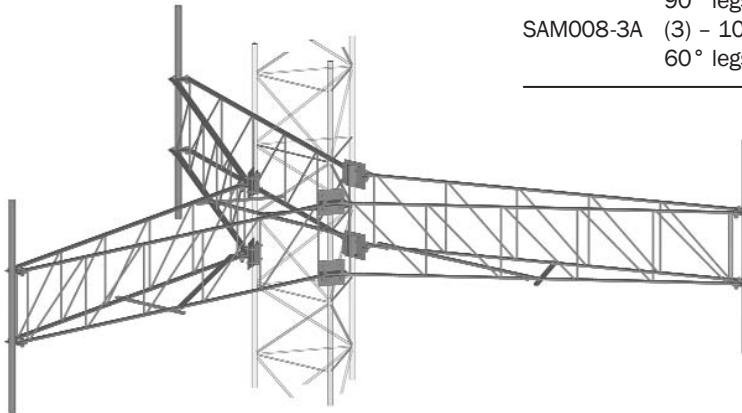
Kit #	Description	Qty	Wt #
<b>6' Wireless Hinge Mount – Vertical Round Legs</b>			
SAM003-1	(1) – 6' wireless hinge mount	kit of 1	<b>300</b>
SAM003-2	(2) – 6' wireless hinge mounts	kit of 2	<b>548</b>
SAM003-3	(3) – 6' wireless hinge mounts	kit of 3	<b>744</b>
<b>6' Wireless Hinge Mount – Vertical Angle Legs</b>			
SAM007-1	(1) – 6' hinge mount 60° legs 2 1/2" to 5" 90° legs 2 1/2" to 6"	kit of 1	<b>454</b>
SAM007-1A	(1) – 6' hinge mount 60° legs 6" to 8"	kit of 1	<b>454</b>
SAM007-2	(2) – 6' hinge mounts 60° legs 2 1/2" to 5" 90° legs 2 1/2" to 6"	kit of 2	<b>700</b>
SAM007-2A	(2) – 6' hinge mounts 60° legs 6" to 8"	kit of 2	<b>700</b>
SAM007-3	(3) – 6' hinge mounts 60° legs 2 1/2" to 5" 90° legs 2 1/2" to 6"	kit of 3	<b>896</b>
SAM007-3A	(3) – 6' hinge mounts 60° legs 6" to 8"	kit of 3	<b>896</b>

## tower accessories

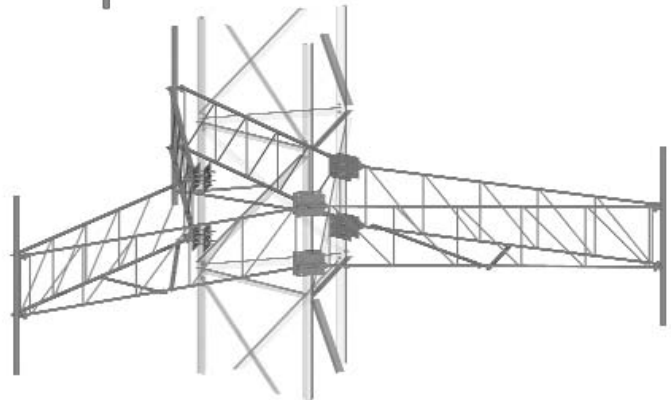
## Antenna Mounts

**10' Wireless Antenna Hinge Mount**

The 10' (3.05 m) Wireless Antenna Hinge Mount provides a platform for locating cellular, PCS or trunking antennas away from the tower face. The 10' dimension represents the mounting frame length; the actual stand-off distance that the mounting pipe is away from the tower will depend upon the face width of the structure. This version includes stabilizing bracing members. The hinge mount's versatile design makes it capable of mounting to vertical round tower legs from 1 1/2" (38 mm) to 3" (76 mm) in diameter, 60° tower legs from 2 1/2" (64 mm) to 8" (203 mm) and 90° angle tower legs from 2 1/2" (64 mm) to 6" (152 mm). The antenna mount comes complete with a 2 3/8" OD (60 mm) x 6' (1,830 mm) mounting pipe, the optimal size for mounting collinear omni or panel directional antennas. These mounts can be purchased in kits of 1, 2, or 3 arms. All parts of the Wireless Antenna Hinge Mount are hot-dip galvanized to provide corrosion protection in the harshest environmental conditions.

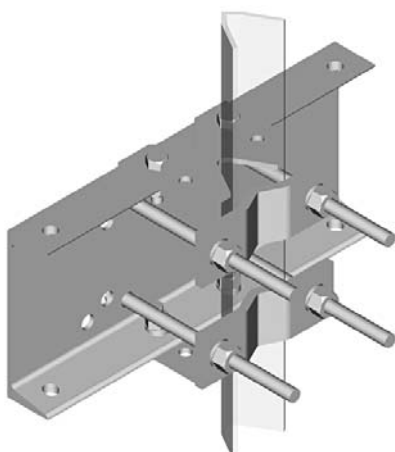
**10' Wireless Hinge Mount – Vertical Round Legs**

Kit #	Description	Qty	Wt #
<b>10' Wireless Hinge Mount – Vertical Round Legs</b>			
SAM004-1	(1) – 10' wireless hinge mount	kit of 1	<b>420</b>
SAM004-2	(2) – 10' wireless hinge mounts	kit of 2	<b>789</b>
SAM004-3	(3) – 10' wireless hinge mounts	kit of 3	<b>1,107</b>
<b>10' Wireless Hinge Mount – Vertical Angle Legs</b>			
SAM008-1	(1) – 10' hinge mount 60° legs 2 1/2" to 5" 90° legs 2 1/2" to 6"	kit of 1	<b>574</b>
SAM008-1A	(1) – 10' hinge mount 60° legs 6" to 8"	kit of 1	<b>574</b>
SAM008-2	(2) – 10' hinge mounts 60° legs 2 1/2" to 5" 90° legs 2 1/2" to 6"	kit of 2	<b>941</b>
SAM008-2A	(2) – 10' hinge mounts 60° legs 6" to 8"	kit of 2	<b>941</b>
SAM008-3	(3) – 10' hinge mounts 60° legs 2 1/2" to 5" 90° legs 2 1/2" to 6"	kit of 3	<b>1,256</b>
SAM008-3A	(3) – 10' hinge mounts 60° legs 6" to 8"	kit of 3	<b>1,256</b>

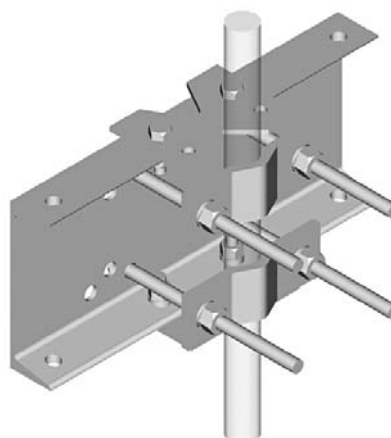
**10' Wireless Hinge Mount – Vertical Angle Legs**

## Antenna Mounts

	Kit #	Description	Qty	Wt #
<b>Side Strut Bracket</b> The Side Strut Bracket is designed to allow for the attachment of antenna side struts and the support struts used for Radian ice guards and other items that use a side strut stabilizer. This versatile bracket mounts to round tower legs from 1 1/2" (38 mm) to 7 1/2" (190 mm) OD and 60° angle legs from 2 1/2" (64 mm) to 8" (203 mm). All parts are hot-dip galvanized to provide maximum corrosion protection.	SMT012-1	side strut bracket round leg 1 1/2" to 4 1/2" 60° legs 2 1/2" to 4"	each	<b>28</b>
	SMT012-2	side strut bracket round leg 4 5/8" to 6" 60° legs 5" to 6"	each	<b>32</b>
	SMT012-3	side strut bracket round leg 6 1/8" to 7 1/2" 60° legs 8"	each	<b>33</b>



**Angle Leg**



**Round Leg**



# tower accessories

## Antenna Ice Guards

### Microwave Antenna Ice Guards

The Ice Guards are designed to prevent falling ice from damaging microwave antennas from 4' (1.2 m) to 12' (3.6 m) in diameter. Each guard mounts to a vertical 4 1/2" x 6' (114 mm) OD pipe mount (purchased separately) or tower leg. All guards are stabilized using a 1 7/8" (48 mm) OD x 10' (3. m) strut arm. All parts are hot-dip galvanized to provide maximum corrosion protection.

Kit #	Description	Qty	Wt #
SGD001	ice guard for 4' antennas	each	<b>400</b>
SGD002	ice guard for 6' antennas	each	<b>658</b>
SGD003	ice guard for 8' & 10' antennas	each	<b>920</b>
SGD004	ice guard for 12' antennas	each	<b>1,195</b>

See page 63 for Pipe Mount.



### 2' Antenna Ice Guard

The 2' (610 mm) Antenna Ice Guard's unique and lightweight design is an ideal solution for protecting small antennas from falling ice. The guard mounts to a 4 1/2" x 6' (114 mm) OD pipe mount (purchased separately) or vertical tower leg. Two bars tied back to the mounting pipe 3' (915 mm) above the frame stabilize this guard. All parts are hot-dip galvanized to provide maximum corrosion protection.

Kit #	Description	Qty	Wt #
SGD005	ice guard for 2' antennas	each	<b>67</b>

See page 63 for Pipe Mount.



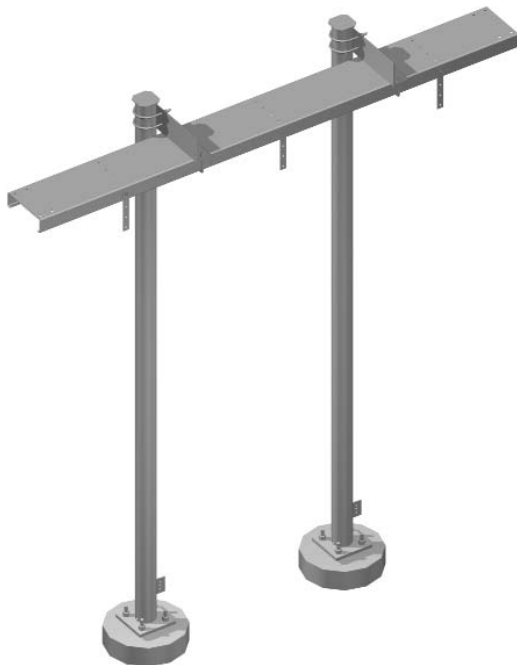
## Tx-Line Bridges

### Standard Tx-Line Bridge

The Standard Tx-Line Bridge is available in single-channel and double-channel versions, in 10' (3 m) or 20' (6.1 m) lengths. Each channel is 12"-wide (300 mm) and capable of supporting (10) transmission lines with the brackets that are provided. The bridge is supported by 4 1/2" (114 mm) OD posts with base plates at the bottom to accommodate threaded rod anchor bolts (sold separately). The bridge height is adjustable up to 10 ft. (3 m). The bridge does not support snap-in style hangers. All parts of the bridge are hot-dip galvanized to provide maximum corrosion protection.

Kit #	Description	Qty	Wt #
<b>Standard Tx-Line Bridge – Single</b>			
STB001-S	standard Tx-line bridge 10-ft. long (3 m), w/single channel	each	<b>390</b>
STB002-S	standard Tx-line bridge 20-ft. long (6.1 m), w/single channel	each	<b>510</b>
<b>Standard Tx-Line Bridge – Double</b>			
STB001-D	standard Tx-line bridge 10-ft. long (3 m), w/double channel	each	<b>540</b>
STB002-D	standard Tx-line bridge 20-ft. long (6.1 m), w/double channel	each	<b>780</b>

**Note:** Anchor Bolt Kit is sold separately. See page 83.



Standard Tx-Line Bridge – Single



Standard Tx-Line Bridge – Double

## tower accessories

## Tx-Line Bridges

	Kit #	Description	Qty	Wt #
<b>Standard Embedded Tx-Line Bridge</b>  The Standard Embedded Tx-Line Bridge is available in single-channel and double-channel versions, in 10' (3 m) or 20' (6.1 m) lengths. Each channel is 12"-wide (300 mm) and capable of supporting (10) transmission lines with the brackets that are provided. The bridge is supported by 4 1/2" (114 mm) OD posts that are embedded a minimum of 3 ft. (1 m) in concrete. The bridge height is adjustable up to 10 ft. (3 m). The bridge does not support snap-in style hangers. All parts of the bridge are hot-dip galvanized to provide maximum corrosion protection.	<b>Standard Embedded Tx-Line Bridge – Single</b>			
	STB001-SE	standard embedded Tx-line bridge 10-ft. long (3 m), w/single channel	each	<b>480</b>
	STB002-SE	standard embedded Tx-line bridge 20-ft. long (6.1 m), w/single channel	each	<b>600</b>
	<b>Standard Embedded Tx-Line Bridge – Double</b>			
	STB001-DE	standard embedded Tx-line bridge 10-ft. long (3 m), w/double channel	each	<b>630</b>
	STB002-DE	standard embedded Tx-line bridge 20-ft. long (6.1 m), w/double channel	each	<b>780</b>



Standard Embedded Tx-Line Bridge – Single



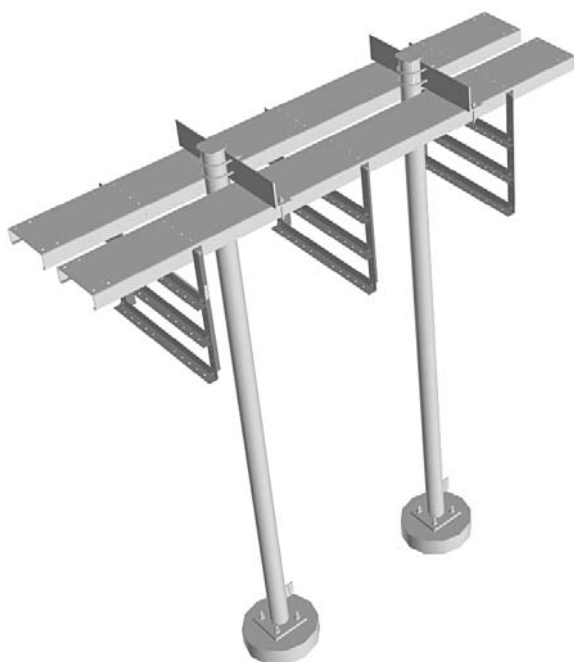
Standard Embedded Tx-Line Bridge – Double

## Tx-Line Bridges

### Trapeze-Style Tx-Line Bridge

The Trapeze-Style Tx-Line Bridge has multiple levels of transmission line support brackets, and is available only on the double-bridge configuration. The Trapeze-Style Tx-Line Bridge can support up to a maximum of 32 transmission lines. This bridge is available in two different models. One has anchor plates at the bottom of the 4 1/2" (114 mm) OD support posts to accommodate threaded rod anchor bolts (sold separately). The second is supplied with longer posts, which can be embedded a minimum of 3 ft. (915 mm) in concrete. The bridge height is adjustable up to 1 ft. (3 m). All parts are hot-dip galvanized to provide maximum corrosion protection.

Kit #	Description	Qty	Wt #
<b>Trapeze-Style Tx-Line Bridge – Posts w/ Base Plates</b>			
STB001-T	trapeze Tx-line bridge 10-ft. long (3 m), posts c/w base plate	each	<b>600</b>
STB002-T	trapeze Tx-line bridge 20-ft. long (6.1 m), posts c/w base plate	each	<b>900</b>
<b>Note:</b> Anchor Bolt Kit is sold separately. See page 83.			
<b>Trapeze-Style Tx-Line Bridge – Embedded</b>			
STB001-TE	trapeze Tx-line bridge 10-ft. long (3 m), posts embedded	each	<b>690</b>
STB002-TE	trapeze Tx-line bridge 20-ft. long (6.1 m), posts embedded	each	<b>1,000</b>



**Trapeze-Style Tx-Line Bridge – Posts w/ Base Plates**



**Trapeze-Style Tx-Line Bridge – Embedded**

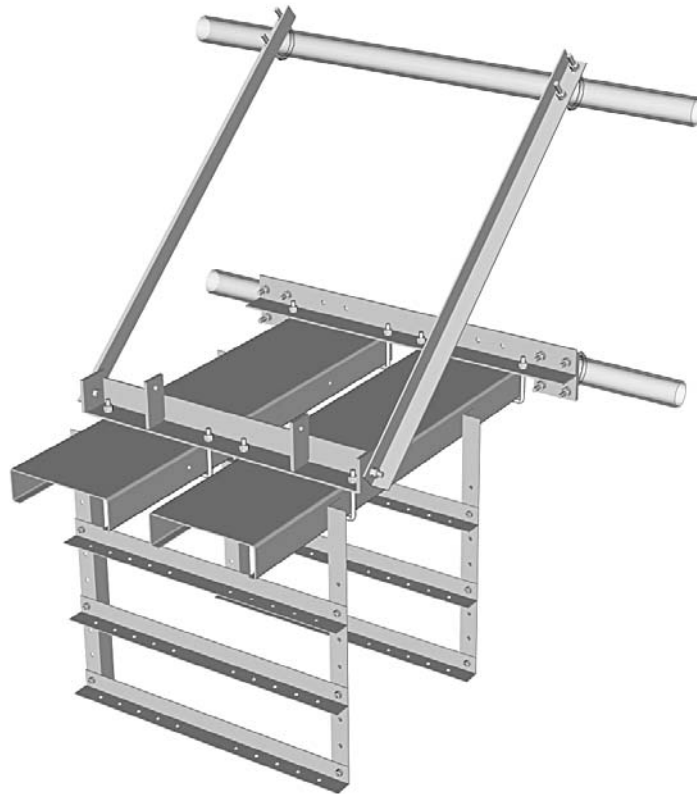
# tower accessories

## Tx-Line Bridges

### Hanging Tx-Line Bridge

The Hanging Tx-Line Bridge is an ideal solution when conditions require the equipment shelter to be located close to the tower structure. This unique design eliminates the need for concrete support piers. The bridge is 4' (1.2 m) long, 2' 4" (710 mm) wide and has a trapeze-style line support capable of carrying 38 runs of transmission lines using standard, butterfly and clip hangers. The bridge connects to the tower via the Face-Mounted Wireless Support Frame, which must be purchased separately. All parts are hot-dip galvanized to provide maximum corrosion protection.

Kit #	Description	Qty	Wt #
STB003	hanging Tx-line bridge (2' 4" x 4')	each	<b>203</b>



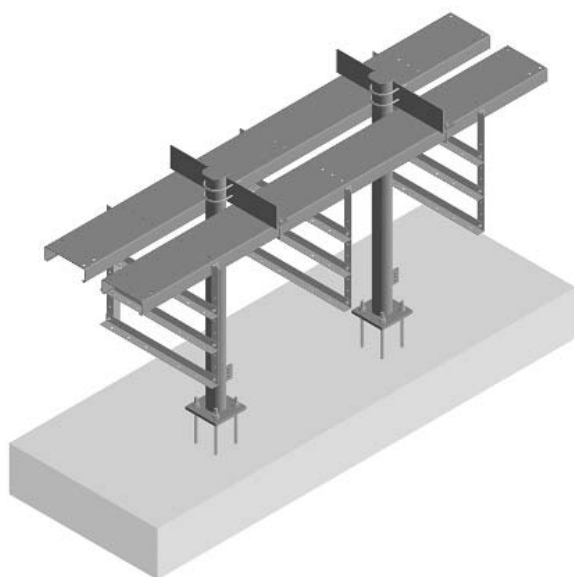
## Tx-Line Bridges

### Trapeze-Style Tx-Line Bridge

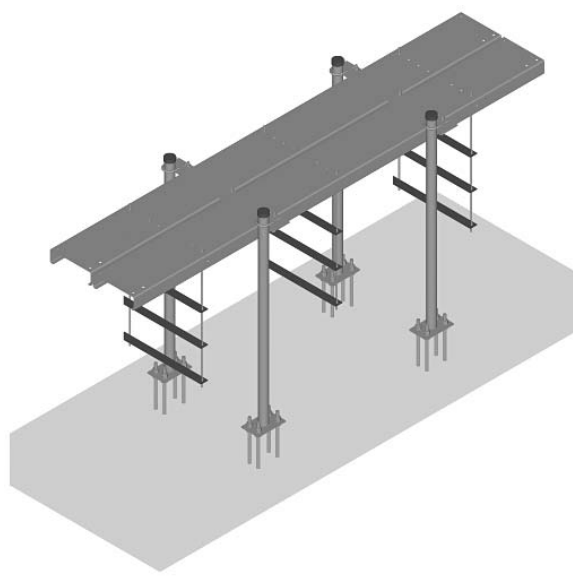
The Trapeze Style Tx-Line Bridge has multiple levels of transmission line support brackets, and is available in either 10' (3 m) or 20' (6 m) lengths. The trapeze configuration can support up to a maximum of 30 transmission lines. The Trapeze-Style Tx-Line Bridge is available in three different models: two 4 1/2" (114 mm) OD support posts, four 3 1/2" (60 mm) OD support posts, and posts that are a minimum of 3' embedded into the concrete foundation. The first two types of support posts come with anchor plates to accommodate four threaded-rod anchor bolts (sold separately). The bridge height is adjustable up to 4' for the low model and 11' for the tall model. All parts are hot-dip galvanized to provide maximum corrosion protection.

Kit #	Description	Qty	Wt #
<b>2-Post Trapeze-Style Tx-Line Bridge</b>			
STB004	4' tall 2-post 10' (3 m) trapeze Tx-line bridge	kit of 1	<b>527</b>
<b>4-Post Trapeze-Style Tx-Line Bridge</b>			
STB005	4' tall 4-post 10' (3 m) trapeze Tx-line bridge	kit of 1	<b>383</b>
STB005-2	11' tall 4-post 10' (3 m) trapeze Tx-line bridge	kit of 1	<b>675</b>
STB005-3	4' tall 4-post 20' (6 m) trapeze Tx-line bridge	kit of 1	<b>728</b>
STB005-4	11' tall 4-post 20' (6 m) trapeze Tx-line bridge	kit of 1	<b>952</b>

**Note:** Anchor Bolt Kit is sold separately. See page 83.



**2-Post Trapeze-Style Tx-Line Bridge**



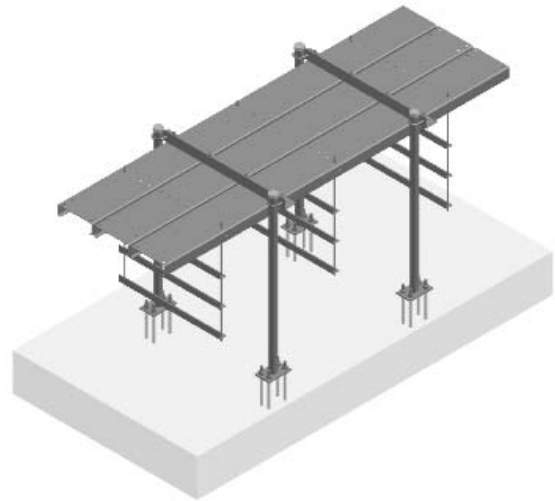
**4-Post Trapeze-Style Tx-Line Bridge**



## tower accessories

## Tx-Line Bridges

Kit #	Description	Qty	Wt #
<b>4-Embedded Post Trapeze-Style Tx-Line Bridge</b>			
STB005-5	4' tall 4-embedded post 10' (3 m) trapeze Tx-line bridge	kit of 1	<b>515</b>
STB005-6	11' tall 4-embedded post 10' (3 m) trapeze Tx-line bridge	kit of 1	<b>683</b>
STB005-7	4' tall 4-embedded post 20' (6 m) trapeze Tx-line bridge	kit of 1	<b>792</b>
STB005-8	11' tall 4-embedded post 20' (6 m) trapeze Tx-line bridge	kit of 1	<b>960</b>
<b>3' Wide 4-Post Trapeze-Style Tx-Line Bridge</b>			
STB010-1	3' wide 6' tall 4-post 10' (3 m) trapeze Tx-line bridge	kit of 1	<b>515</b>



## Tx-Line Bridges

### Miscellaneous Tx-Line Bridge Components

	Kit #	Description	Qty	Wt #
<b>Standard Tx-Line Bridge Expansion Brackets</b>	STB006-A	5-line Tx-line bridge expansion bracket	each	2
	STB006-B	10-line Tx-line bridge expansion bracket	each	3

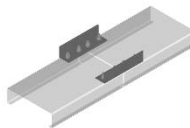
The Standard Tx-Line Bridge Expansion Brackets' unique design increases the existing bridge's line capacity without interfering with or requiring the removal of existing lines. These brackets are available in 5- and 10-line versions, which simply attach to the existing bridge structure. Brackets do not support snap-in hangers. All parts are hot-dip galvanized.



5-Line Bracket    10-Line Bracket

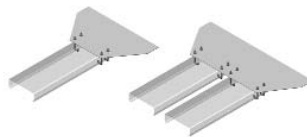
	Kit #	Description	Qty	Wt #
<b>Tx-Line Bridge Splice Connection Kit</b>	STB006-F	Tx-line bridge splice connection kit	each	8

The Tx-Line Bridge Splice Connection Kit is designed to give support and enable two bridge channels to be connected together. All parts are hot-dip galvanized. Hardware included.



	Kit #	Description	Qty	Wt #
<b>Standard Tx-Line Bridge Cover Plates</b>	STB006-C	single-bridge 2'-wide cover plate	each	27
	STB006-D	single-bridge 3'-wide cover plate	each	34
	STB006-E	double-bridge 4'-wide cover plate	each	53

These Cover Plate Mounts at the end of a single or double Tx-Line Bridge protect the lines as they enter the port or shelter. Hardware included. All parts are hot-dip galvanized.



	Kit #	Description	Qty	Wt #
<b>Tx-Line Bridge Anchor Bolts</b>	SAB001-1	Tx-line bridge anchor bolt kit 5/8" x 3' thd rods	kit of 1	3
	SAB001-2	Tx-line bridge anchor bolt kit 3/4" x 3' thd rods	kit of 1	4

There are two kits available for the Tx-line bridges: the 5/8" and the 3/4". Each kit is complete with four threaded rods, two hex nuts and one hardened washer.

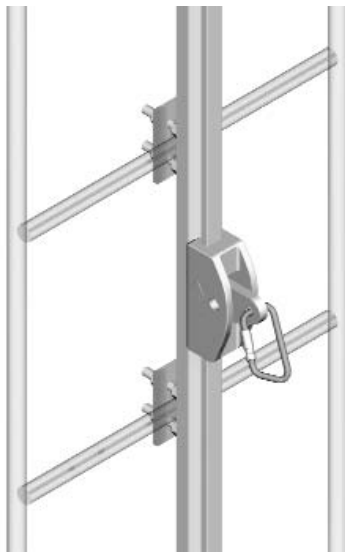


## tower accessories

## Safety Material

**Safety Climb System – Rail**

The RAM Safety Climb Rail System is designed to mount directly to fixed ladders to provide fall protection while climbing. The system's unique design allows the trolley to be installed only one way, thus eliminating the possibility of an accident by installing the trolley upside down. The rails clamp to round or square 3/4" (19 mm) diameter ladder rungs. This product meets or exceeds all OSHA requirements for climbing safety. The RAM system is ordered by selecting (1) 10' or 20' Top Rail Kit and then selecting the appropriate number of 10' and 20' Rail Kits to achieve your tower height requirements. Mounting brackets and a rail splice are furnished with each of the 10' and 20' kits. Both the rail and the trolley are manufactured from premium-quality 6061-T6 aluminum. The trolley is ordered separately.

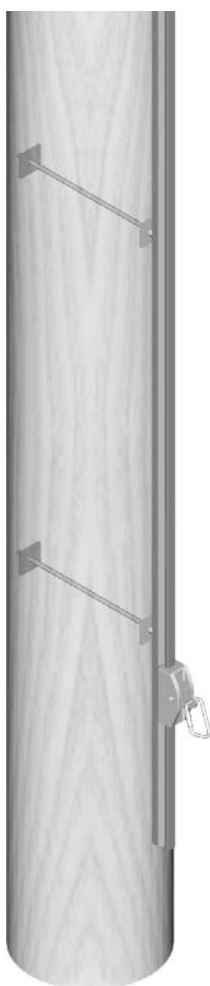


Part #	Description	Qty	Wt #
<b>Safety RAM Rail</b>			
SCL001-1	20' RAM safety rail c/w hardware	each	<b>18</b>
SCL001-2	10' RAM safety rail c/w hardware	each	<b>9</b>
SCL001-3	20' RAM safety rail c/w hardware top	each	<b>18</b>
SCL001-4	10' RAM safety rail c/w hardware top	each	<b>9</b>
SCL001-5	additional RAM clamp kits	each	<b>2</b>
<b>RAM Trolleys</b>			
160389	RAM spring lever trolley c/w carabiner	each	<b>2</b>
<b>Safety Rail Stand-off</b>			
SCL002-1	safety rail stand-off	each	<b>14</b>
<b>Safety Rail Stand-off at Pinwheel Boom Location</b>			
SCL002-2	stand-off 2 lev. 2.88" OD (73 mm OD) boom	each	<b>29</b>
SCL002-3	stand-off 3 lev. 2.88" OD (73 mm OD) boom	each	<b>39</b>
SCL002-4	stand-off 2 lev. 4.5" OD (114 mm OD) boom	each	<b>29</b>
SCL002-5	stand-off 3 lev. 4.5" OD (114 mm OD) boom	each	<b>39</b>
SCL002-6	stand-off 2 lev. 3 1/2" to 4" OD (89-102 mm OD) sq. boom	each	<b>43</b>
SCL002-7	stand-off 3 lev. 3 1/2" to 4" OD (89-102 mm OD) sq. boom	each	<b>60</b>

## Safety Material

### RAM Rail on Wooden Pole

The RAM Rail system can be installed on wooden poles of diameters from 10" to 16". The head of each 3/8" grade-2 bolt is secured in the rail body, passed through the wooden pole and clamped with front and back plate washers in order to sandwich the pole. The top rail kit is provided with a crimped rail near the top to act as a safety stop to prevent the trolley from coming off. Both the standard sections and the top sections are available in 10' or 20'. Internal splice bars for joining two adjoining sections are provided with the kits.



Part #	Description	Qty	Wt #
<b>Safety RAM Rail – Step Bolt Wooden Pole 10"-16" dia</b>			
SCL005-1	20' RAM safety rail system – step bolt wooden pole	each	<b>26</b>
SCL005-2	10' RAM safety rail system – step bolt wooden pole	each	<b>14</b>
SCL005-3	20' RAM safety top rail system – step bolt wooden pole	each	<b>26</b>
SCL005-4	10' RAM safety top rail system – step bolt wooden pole	each	<b>14</b>

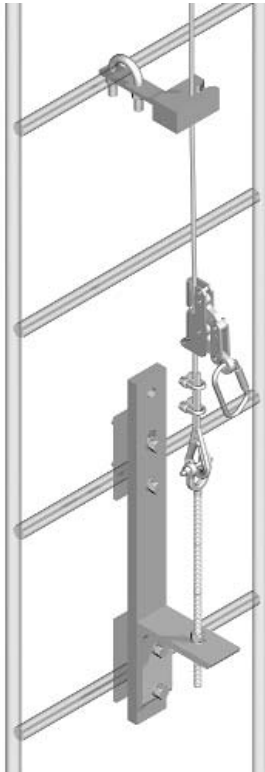
# tower accessories

## Safety Material

### Safety Climb System – Cable

The RAM Safety Climb Cable System is designed to provide fall protection while climbing or descending a variety of ladders or vertical structures. The stainless steel slider (fall arrestor) can be attached or removed from the cable at any point. It is secured with a compatible carabiner, supplied with the slider, to the sternal D-ring on any approved climbing harness. The slider is not included in the system and must be ordered separately.

The user is free to climb and descend with full use of the hands. In the event of a fall, the slider will automatically arrest the fall. The slider has a built-in mechanism preventing it from operating in the upside-down position. Kits are complete with all mounting hardware, top and bottom mounts, stand-off brackets and cable. The RAM slider is designed specifically for use on 7x19 constructed 3/8" galvanized aircraft cable. This system will also support the use of DBI Sala's slider.

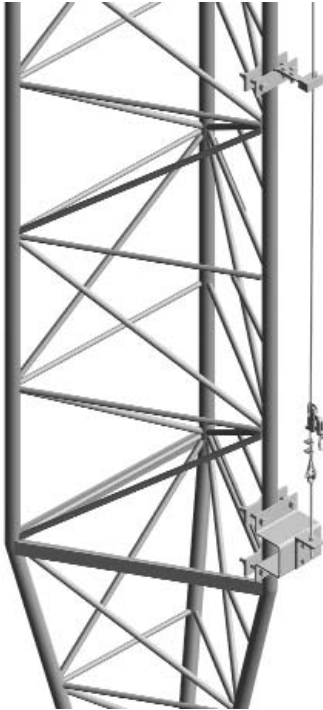


Part #	Description	Qty	Wt #
<b>Safety RAM Cable-Ladder</b>			
SCL010-1	25' RAM safety cable system	kit of 1	<b>48</b>
SCL010-2	50' RAM safety cable system	kit of 1	<b>54</b>
SCL010-3	100' RAM safety cable system	kit of 1	<b>66</b>
SCL010-4	150' RAM safety cable system	kit of 1	<b>78</b>
SCL010-5	200' RAM safety cable system	kit of 1	<b>91</b>
SCL010-6	250' RAM safety cable system	kit of 1	<b>102</b>
SCL010-7	300' RAM safety cable system	kit of 1	<b>113</b>
SCL010-8	350' RAM safety cable system	kit of 1	<b>126</b>
SCL010-9	400' RAM safety cable system	kit of 1	<b>138</b>
SCL010-10	500' RAM safety cable system	kit of 1	<b>162</b>
<b>Note:</b> Each cable system is complete with "L" type cable guides.			
<b>RAM Cable Safety Sleeve (Slider)</b>			
SCL010-S	RAM cable safety sleeve (slider) kit	kit of 1	<b>2</b>
<b>Optional Items:</b>			
160418	straight cable guide	kit of 1	<b>1</b>
160419	"L" type cable guide	kit of 1	<b>1</b>
CL010F	cable guide extension bar	kit of 1	<b>3</b>

## Safety Material

### RAM Cable on Other Structures with Step Bolts

A variety of RAM Cable kits are available for step bolt applications on round legs, 60°-angle legs, monopoles, and wooden poles. On round legs, kits are available for mast leg sizes ranging from 1 1/2" to 4 1/2" OD. On angle legs, the kits will suit 4" to 8" legs. RAM Cable kits can be installed on steel monopoles of the round or polygon cross-section. For wooden poles, the minimum to maximum diameter is 10" to 16". As in the ladder kits, all kits are complete with mounting hardware, top and bottom mounts, and cable guides.

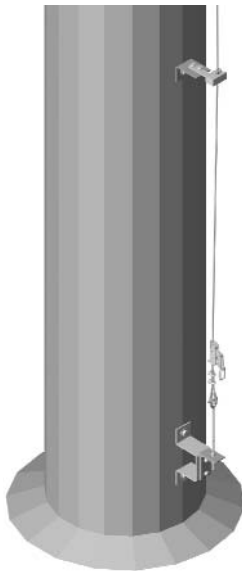
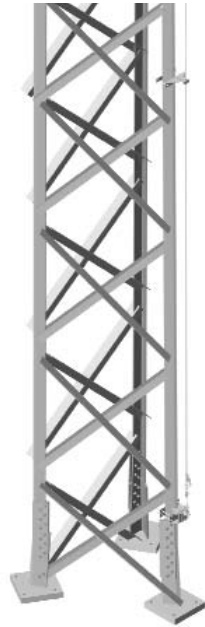


Part #	Description	Qty	Wt #
<b>Safety RAM Cable – Step Bolts Round Legs</b>			
SCL013-1	25' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>90</b>
SCL013-2	50' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>96</b>
SCL013-3	100' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>108</b>
SCL013-4	150' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>120</b>
SCL013-5	200' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>133</b>
SCL013-6	250' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>144</b>
SCL013-7	300' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>155</b>
SCL013-8	350' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>168</b>
SCL013-9	400' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>180</b>
SCL013-10	500' RAM safety cable system – step bolt 1 1/2" to 4 1/2" dia leg	kit of 1	<b>204</b>



## tower accessories



## Safety Material





Part #	Description	Qty	Wt #
<b>Safety RAM Cable - Step Bolts 60° Angle Legs</b>			
SCL014-1	25' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>95</b>
SCL014-2	50' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>101</b>
SCL014-3	100' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>127</b>
SCL014-4	150' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>153</b>
SCL014-5	200' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>180</b>
SCL014-6	250' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>205</b>
SCL014-7	300' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>230</b>
SCL014-8	350' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>257</b>
SCL014-9	400' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>283</b>
SCL014-10	500' RAM safety cable system – step bolt 4" to 8" 60° leg	kit of 1	<b>335</b>
<b>Safety RAM Cable – Step Bolt Monopoles</b>			
SCL015-1	25' RAM safety cable system – step bolt monopole	kit of 1	<b>65</b>
SCL015-2	50' RAM safety cable system – step bolt monopole	kit of 1	<b>71</b>
SCL015-3	100' RAM safety cable system – step bolt monopole	kit of 1	<b>83</b>
SCL015-4	150' RAM safety cable system – step bolt monopole	kit of 1	<b>95</b>
SCL015-5	200' RAM safety cable system – step bolt monopole	kit of 1	<b>108</b>

# tower accessories

## Safety Material

		Kit #	Description	Qty
<b>Journeyman Harness</b>		<b>Four D-Ring Model</b>		
 		160380	journeyman 4 D-ring model harness	each
<p><b>Front View</b>      <b>Back View</b></p>				

		Kit #	Description	Qty
<b>Professional Harness</b>		<b>Tower Harness Model</b>		
 		160381	professional tower harness – medium	each
		160382	professional tower harness – large	each
		160383	professional tower harness – x large	each
<p><b>Front View</b>      <b>Back View</b></p>				

## Safety Material



Part #	Description	Qty	Wt #
<b>Safety RAM Cable – Step Bolt Wooden Pole 10" to 16" Dia</b>			
SCL016-1	10' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>55</b>
SCL016-2	20' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>58</b>
SCL016-3	30' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>61</b>
SCL016-4	40' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>63</b>
SCL016-5	50' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>66</b>
SCL016-6	60' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>69</b>
SCL016-7	70' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>72</b>
SCL016-8	80' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>74</b>
SCL016-9	90' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>77</b>
SCL016-10	100' RAM safety cable system – step bolt wooden pole 10" to 16" dia	kit of 1	<b>80</b>

## Lighting Systems/Mounts



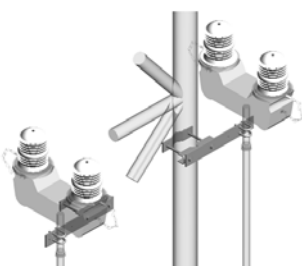
### Lighting Systems

Lighting requirements are determined by the specific conditions of a site and tower structure.

Radian offers a complete line of lighting products and solutions that can be customized to satisfy U.S. Department of Transportation FAA Advisory Circular and Transport Canada requirements. Contact [catalogsales@radiancorp.com](mailto:catalogsales@radiancorp.com) for more information.


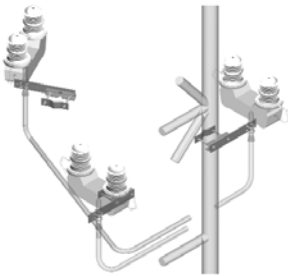

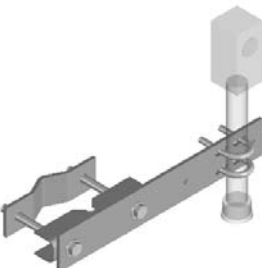
### Lighting Mounts

Radian lighting mounts make lighting system installations quick and easy. Constructed of hot-dip galvanized steel to provide long-lasting corrosion protection, they accommodate both schifferized (60°) angle and round (pipe or solid) tower legs. These mounts are flexible to suit almost any situation. The mounts are designed to support junction boxes, double obstruction lights, top beacons, and photocells.

	Item #	Description	Qty	Wt #
<b>"JB" Tower Junction Box Mounting</b> 	SLT001-1	TJB mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V-leg	kit	<b>5</b>
	SLT001-2	TJB mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° deg V-leg	kit	<b>6</b>
	SLT001-3	TJB mnt kit 6 1/8" to 8" rnd, 8" 60° V-leg	kit	<b>7</b>
<b>"JC" Tower Junction Box Mounting</b> 	SLT002-1	TJB mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V-leg	kit	<b>8</b>
	SLT002-2	TJB mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V-leg	kit	<b>10</b>
	SLT002-3	TJB mnt kit 6 1/8" to 8" rnd, 8" 60° V-leg	kit	<b>12</b>
<b>(2) Double Obstruction Light Mount</b> 	SLT003-1	dbl obstr mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V-leg	kit	<b>15</b>
	SLT003-2	dbl obstr mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V-leg	kit	<b>19</b>
	SLT003-3	dbl obstr mnt kit 6 1/8" to 8" rnd, 8" 60° V-leg	kit	<b>23</b>

## tower accessories

## Lighting Mounts

	Item #	Description	Qty	Wt #
<b>Top Beacon Mounting</b> 	SLT004-1	top becn mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V-leg	kit	<b>53</b>
	SLT004-2	top becn mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V-leg	kit	<b>59</b>
	SLT004-3	top becn mnt kit 6 1/8" to 8" rnd, 8" 60° V-leg	kit	<b>61</b>
<b>(3) Double Obstruction Light Mount</b> 	SLT005-1	dbl obstr mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V-leg	kit	<b>18</b>
	SLT005-2	dbl obstr mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V-leg	kit	<b>23</b>
	SLT005-3	dbl obstr mnt kit 6 1/8" to 8" rnd, 8" 60° V-leg	kit	<b>28</b>
<b>Double Beacon Mounting</b> 	SLT006-1	dbl becn mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V-leg	kit	<b>51</b>
	SLT006-2	dbl becn mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V-leg	kit	<b>53</b>
	SLT006-3	dbl becn mnt kit 6 1/8" to 8" rnd, 8" 60° V-leg	kit	<b>57</b>
<b>Photocell Mount</b> 	SLT007-1	photocell mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V-leg	kit	<b>5</b>
	SLT007-2	photocell mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V-leg	kit	<b>6</b>
	SLT007-3	photocell mnt kit 6 1/8" to 8" rnd, 8" 60° V-leg	kit	<b>7</b>

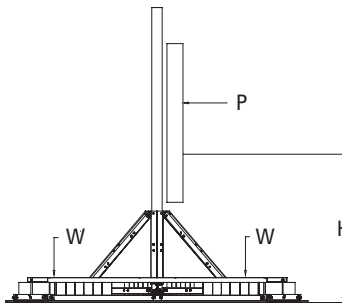
## Antenna Support

### Non-Penetrating Tripod Mount

The Non-Penetrating Tripod Mount provides excellent support for wireless whip, panel and other antennas that require a 2 7/8" (73 mm) OD or a 4 1/2" (114 mm) OD mounting pipe. These tripod mounts, with a mast mounting area of over 7 1/2', are secured to the roof with concrete block ballast. The mount's footprint consists of three 1' 4" (405 mm) wide x 8' (2.4 m) long ballast trays, which can be placed on any of the six optional rubber mats that protect the roof's surface. Optional ballast tie-down kits are also available to further secure the mount. All parts of this mount are hot-dip galvanized to provide maximum corrosion protection.



### Formula for Determining Tripod Ballast



$$W = (0.137)(P)(H) - (96)$$

W= Weight of ballast on each side of tripod (pounds)  
P= Wind load of antenna (pounds)  
H= Height of antenna centerline above roof level (feet)  
(W)(3)=Total ballast required

#### Note:

Formula includes a 1.5 factor of safety for overturning.

#### Example:

P= 150 lbs. at 95 mph  
H= 6' antenna centerline above roof  
 $W = (0.137)(150)(6) - (96) = 27 \text{ lbs.}$

#### Total Ballast Required:

$(W)(3) = (27)(3) = 81 \text{ lbs.}$  (27 lbs. distributed evenly on each of the three trays.)

#### Note:

A nominal 4" x 8" x 16" solid concrete block weighs 20-30 lbs.



## Antenna Support

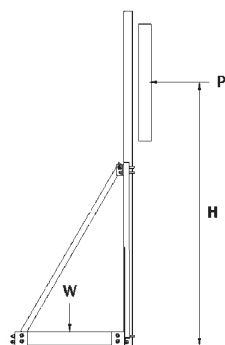
### Light Non-Penetrating Tripod Mount

The Light Non-Penetrating Tripod Mount is designed to support small wireless antennas. Its knock-down assembly makes it simple to transport and construct. To confirm its usability for an application, calculation of the required ballast should be made. The base frame is designed to receive standard concrete block with overall dimensions of 34" x 24" x 2". The 2 3/8" OD vertical pipe mount comes in three heights: 6', 8' and 10'. All components are hot-dip galvanized. Rubber pads are sold separately.

Kit #	Description	Qty	Wt #
SAM023-1	light non-penetrating tripod mount – 2 3/8" OD x 6' mast	kit of 1	<b>117</b>
SAM023-2	light non-penetrating tripod mount – 2 3/8" OD x 8' mast		
SAM023-3	light non-penetrating tripod mount – 2 3/8" OD x 10' mast	kit of 1	<b>129</b>



### Formula for Determining Tripod Ballast (Light Non-Penetrating Tripod Mount)



$$W = (1.715)(P)(H) - (85)$$

W= Total weight of ballast required (pounds)

P= Wind load of antenna (pounds)

H= Height of antenna centerline above roof level (feet)

#### Example:

P= 100 lbs

H= 4' antenna centerline above roof

W= (1.715)(100)(4) - (85) = 601 lbs

Using concrete blocks weighing approximately 120 pounds each, number of required blocks is 601/120 = 5 blocks)

## Antenna Support

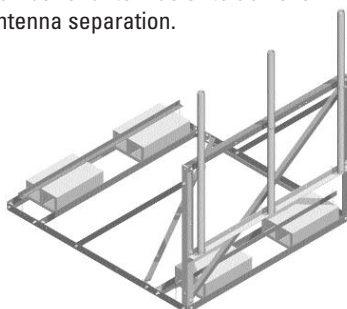
### Non-Penetrating Roof Frames

The Non-Penetrating Roof Frames provide excellent support for panel sector and wireless whip antennas that require a 2 3/8" (60 mm) OD or a 2 7/8" (73 mm) OD mounting pipe. Pipes are ordered separately, according to the antenna and its required mounting height above roof level. These roof frames are secured to the roof by placing concrete block ballast (not included) on the frame's ballast trays. The total weight of ballast for each frame is determined

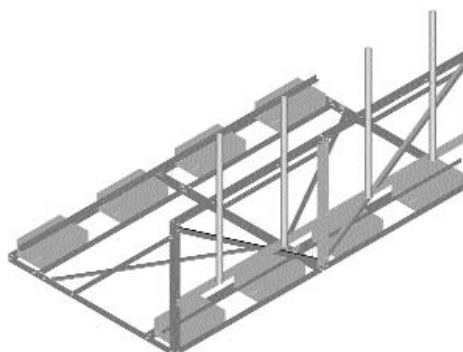
by using the formula supplied. The frame has a compact footprint of 6' 11" (2,380 mm) wide x 7' 10" (2,115 mm) deep. To protect the roof's surface from damage, four optionally purchased Rubber Pads are placed under the front and rear ballast trays. Optional Ballast Tie-Down Kits are also available to further secure the ballast. All parts of these frames are hot-dip galvanized to provide maximum corrosion protection.

	Kit #	Description	Qty	Wt #
<b>6' Non-Penetrating Roof Frame</b>	SAM019-1	6' non-penetrating roof frame	each	<b>290</b>
	SAM019-3	frame ballast tie-down kit	kit of 2	<b>36</b>

The 6' (1.8 m) Non-Penetrating Roof Frame can support three antenna mounting pipes with a maximum separation between pipes of 6' 1/2" (1.8 m). The frame has five optional pipe mounting locations and can be bolted to other 6' frames to increase the number of antennas or to achieve the required antenna separation.



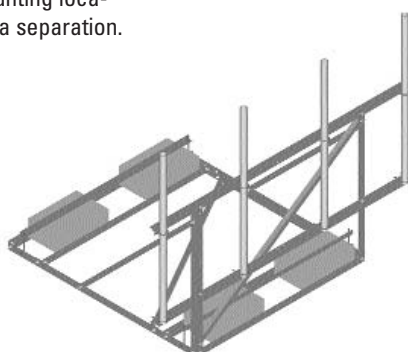
Single 6' Roof Frame



Double 6' Roof Frame

	Kit #	Description	Qty	Wt #
<b>10' Non-Penetrating Roof Frame</b>	SAM019-2	10' non-penetrating roof frame	each	<b>342</b>
	SAM019-3	frame ballast tie-down kit	kit of 2	<b>36</b>

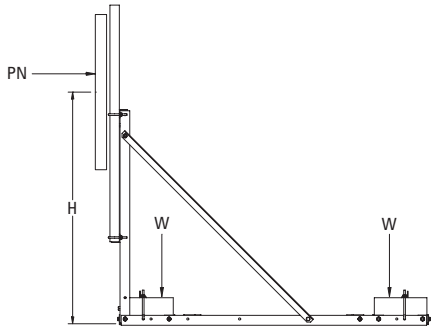
The 10' (3 m) Non-Penetrating Roof Frame can support four antenna mounting pipes with a maximum separation between pipes of 10' (3 m). The frame has five optional pipe mounting locations to achieve the required antenna separation.



# site accessories

## Antenna Support

### Formula for Determining Frame Ballast



$$W=(0.0158)(N)(P)(H)-103$$

W= Weight of ballast on each of the ballast trays (pounds)  
 N= Number of antennas  
 P= Wind load of antenna (pounds)  
 H= Height of antenna centerline above roof level (inches)  
 (W)(2)= Total ballast required

**Note:**  
 Formula includes a 1.5 factor of safety for overturning.

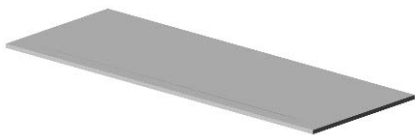
**Example:**  
 N= 4 antennas  
 P= 150 lbs.  
 H= 60" antenna centerline above roof  
 $W= (0.0158)(4)(150)(60)-(103)= 466$  lbs.

**Total Ballast Required:**  
 $(W)(2)=(466)(2)= 932$  lbs. (466 lbs. distributed evenly on each of the two trays.)

**Note:**  
 A nominal 4" x 8" x 16" solid concrete block weighs 20-30 lbs.


### Rubber Pad

The Rubber Pads are used to protect the roof surface from damage caused by the ballast of the Non-Penetrating Tripod Mount, Roof Frames or other items. Each pad is 1/2" (13 mm) thick x 18" (457 mm) wide x 48" (1,220 mm) long.



Kit #	Description	Qty	Wt #
120355	rubber pad – 18" x 48" x 1/2"	each	16

## Antenna Support

	Kit #	Description	Qty	Wt #
<b>Wireless Wall Mount</b>  The Wireless Wall Mount is an effective solution for the mounting of directional, omni wireless or microwave antennas on a flat wall. The mount is available in three pipe diameters: 2 3/8" (60 mm), 2 7/8" (73 mm) and 4 1/2" (114 mm) OD. It also comes in the three optional pipe lengths of 6', 8' and 10' (1.8 m, 2.4 m, 3 m). The spacing between the two mounting angles is adjustable to suit various antenna clamp spacing and to achieve a stable mounting position; a recommended minimum separation is 3' (915 mm). In order to install the Wall Mounts, an optional Wall Anchor Installation Kit that matches the specific wall construction must be purchased.	SAM015-1	wall mount 2 3/8" dia. x 6'	each	<b>42</b>
	SAM015-2	wall mount 2 3/8" dia. x 8'	each	<b>50</b>
	SAM015-3	wall mount 2 3/8" dia. x 10'	each	<b>55</b>
	SAM016-1	wall mount 2 7/8" dia. x 6'	each	<b>66</b>
	SAM016-2	wall mount 2 7/8" dia. x 8'	each	<b>83</b>
	SAM016-3	wall mount 2 7/8" dia. x 10'	each	<b>93</b>
	SAM017-1	wall mount 4 1/2" dia. x 6'	each	<b>98</b>
	SAM017-2	wall mount 4 1/2" dia. x 8'	each	<b>112</b>
				

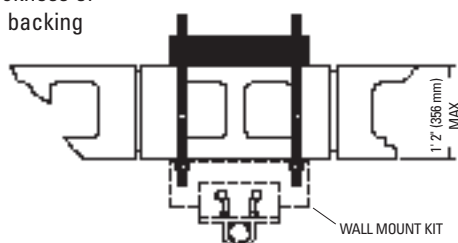
### Wall Anchor Installation Kits

A Wall Anchor Installation Kit is required to secure any of the Wireless Wall Mount Kits. Select your kit according to the specific wall construction of your location. All listed Anchor Kits use 5/8" diameter hardware and contain all necessary hardware and parts for its installation.

#### Thru-Bolt Anchor Kit

This kit is used for hollow and build-up walls and can accommodate a maximum wall thickness of 1' 2" (356 mm). The kit is complete with backing angles, threaded rods and hardware.

Kit #	Description	Qty	Wt #
SAM018-1	thru-bolt anchor kit	kit of 2	<b>35</b>

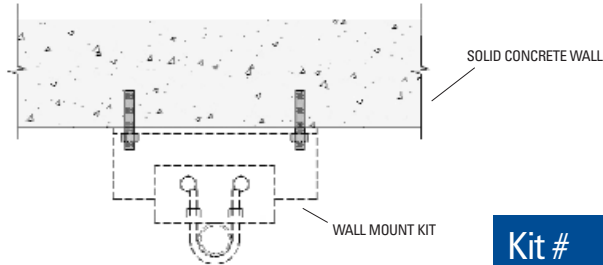


# site accessories

## Antenna Support

### Concrete Anchor Kits

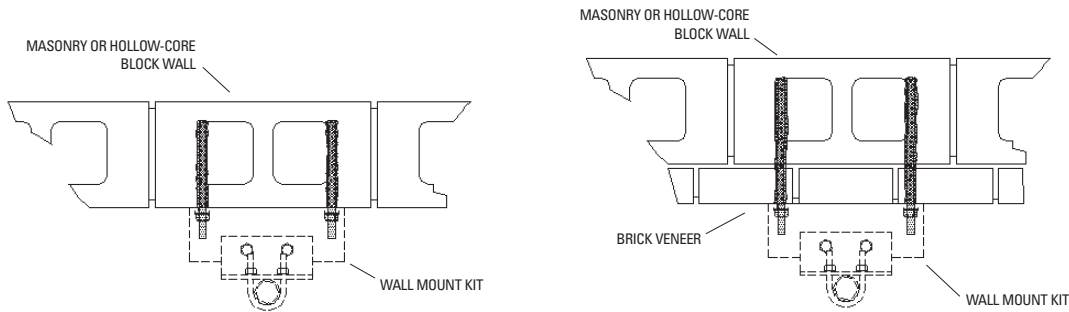
These kits are used for solid concrete walls and come complete with all necessary hardware.



Kit #	Description	Qty	Wt #
SAM018-2	rawl mechanical anchor	kit of 2	1
SAM018-3	HVAM epoxy anchor	kit of 2	1

### Adhesive Anchor Kits

These kits are used for masonry or hollow-core block walls. Each kit contains an 8" (203 mm) or 12" (305 mm) stainless steel threaded rod, screen tubes and adhesive cartridges.



Kit #	Description	Qty	Wt #
SAM018-4	block wall adhesive kit	kit of 2	1
SAM018-5	block & brick adhesive kit	kit of 2	1

### Tilt Mount Kit

The Tilt Mount Kit provides an efficient and reliable way to meet your downtilt requirements. The pre-punched holes in the tilt angle provide easy and accurate field adjustment from 0° to 25°. The mount is capable of supporting a 2 3/8" (60 mm) or 2 7/8" (73 mm) OD antenna mounting pipe and can mount to a 2 3/8" (60 mm) or 2 7/8" (73 mm) OD support pipe or tower leg. The mount includes all necessary assembly hardware and all parts are hot-dip galvanized to provide maximum corrosion protection.

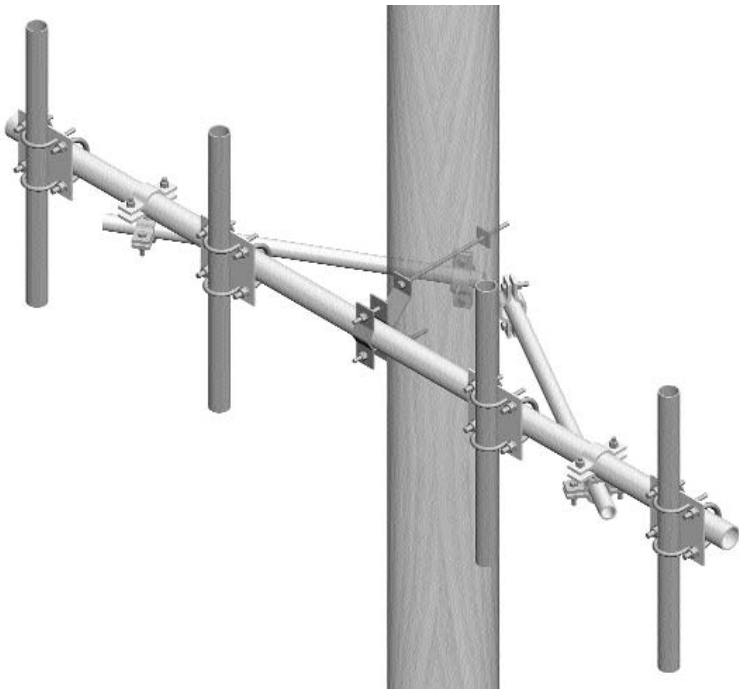
Kit #	Description	Qty	Wt #
SAM006-1	tilt mount kit	each	30



Antenna Support

	Kit #	Description	Qty	Wt #
<b>Wood Pole PCS Mount</b>	SMT024-1	wood pole PCS mount	kit of 1	<b>203</b>

Radian offers a sturdy, reliable wood pole antenna mount that allows for up to four PCS sector antennas. This mount allows for omni-directional mounting capability and is designed to fit 10" to 16" diameter wood poles. The mount uses a horizontal 2 7/8" x 10' pipe to support four 2 7/8" x 3' vertical pipes. Two stabilizer arms provide additional stability for optimal antenna performance. All components are hot-dip galvanized to provide effective corrosion resistance in extreme environmental conditions.

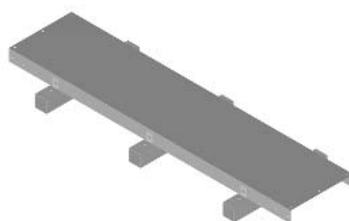




## Rooftop Bridges

### Rooftop Tx-Line Bridge Kit

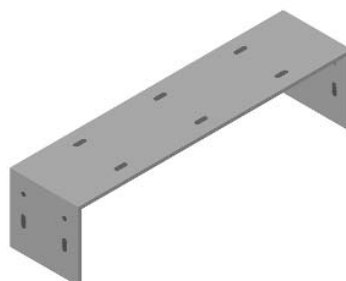
The Tx-Line Bridge Kits provide an easy solution for supporting Tx-Lines while protecting them from the elements. All kits include an 8' (2.4 m) Tx-Line Bridge, three square PVC sleepers, formed 'L' brackets, and all appropriate installation hardware. The kits are either 11 1/2" (30 cm) wide, (for four runs of Tx-Line), 21 1/2" (55 cm) wide, (for eight runs of Tx-Line), or 31 1/4" (79 cm) wide, (for 12 runs of Tx-Line). Common snap-in hangers are used to secure the Tx-Lines to the pre-punched holes in the 4" (10 cm) square PVC sleepers. Any rooftop layout is possible with the selection of interconnecting accessories available. Installation can flow or bend through any rooftop setting. The Rooftop Tx-Line Bridge Kit is designed to be assembled on site. All steel material is hot-dip galvanized to ensure maximum corrosion protection.



Kit #	Description	Qty	Wt #
STB008-1	4-line rooftop Tx-line bridge c/w PVC sleepers	each	43
STB008-2	8-line rooftop Tx-line bridge c/w PVC sleepers	each	66
STB008-3	12-line rooftop Tx-line bridge c/w PVC sleeper	each	84

### Rooftop Tx-Line Bridge Splice Kit

The straight splice facilitates interconnection of two Tx-Line Bridge Kits. Installation hardware is included.



Kit #	Description	Qty	Wt #
STB008-4	4-line splice	each	2
STB008-5	8-line splice	each	3
STB008-6	12-line splice	each	4

### Rooftop Tx-Line Bridge Adjustable Splice Kit

The adjustable angle splice allows 0-45° interconnection of two Tx-Line Bridge Kits. Installation hardware is included.



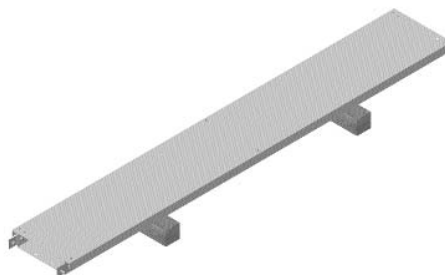
Kit #	Description	Qty	Wt #
STB008-7	4-line adjustable splice	each	3
STB008-8	8-line adjustable splice	each	6
STB008-9	12-line adjustable splice	each	11

## Cable Trays

### Rooftop Tx-Line Cable Trays

The Tx-Line Cable Trays provide a simple solution for supporting transmission lines while protecting them from the elements. All kits include an 8' (2.4 m) Tx-Line Tray and Tray Cover, three square pressure-treated wood sleepers, and all appropriate installation hardware. The kits are either 6" (15 cm) or 12" (30 cm) wide. Quantity of lines will vary, depending on line size. 1 1/2" lag screws are used to secure the cable trays to the pressure-treated 4" square sleepers. Any rooftop layout is possible with the selection of interconnecting accessories available; installation can flow or bend through any rooftop setting. The Rooftop Cable Tray Kit is designed to be assembled on site. All steel material is hot-dip galvanized to ensure maximum corrosion protection.

Item #	Description	Qty	Wt #
STB009-1	6" cable tray c/w cover	each	43
STB009-2	12" cable tray c/w cover	each	66



### Adjustable Angle Splice for Rooftop Cable Trays

The adjustable angle splice allows 0-45° interconnection of two Rooftop Cable Tray Kits. Installation hardware is included.

Item #	Description	Qty	Wt #
STB009-3	6" adjustable cover	each	2
STB009-4	12" adjustable cover	each	3



### Tx-Line Bridge Cable Tray

Similar to the rooftop Tx-Line Cable Tray, this cable tray is designed to be used in place of the standard Tx-Line Bridge. For sites where equipment cabinets, rather than equipment buildings, are utilized at ground level, this tray provides a safe route for the Tx-lines to span the distance from the antenna-supporting structure to the equipment cabinets. Line capacity will obviously depend on the size of the lines; however, this tray will hold 34 lines for 2" OD cables. The inside dimensions for holding the lines are slightly greater than 7" high and 18" wide.

Item #	Description	Qty	Wt #
STB013-1	18" x 8" Tx-line cable tray c/w cover	kit of 1	213

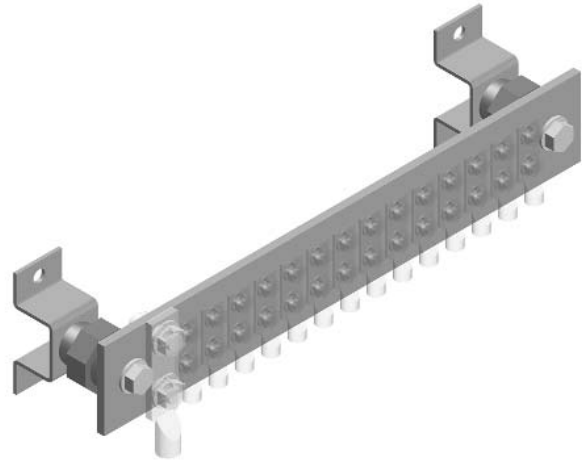
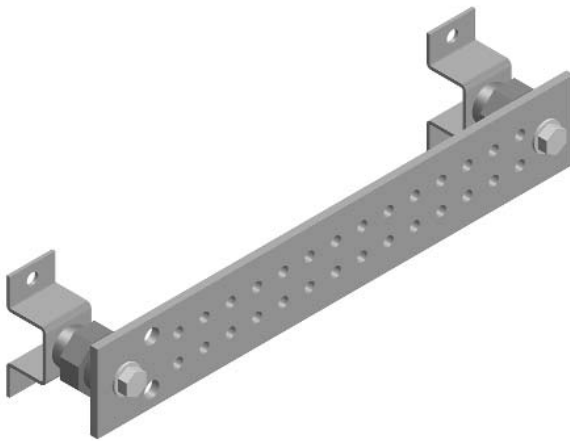


## Grounding

### Grounding Buss Bar

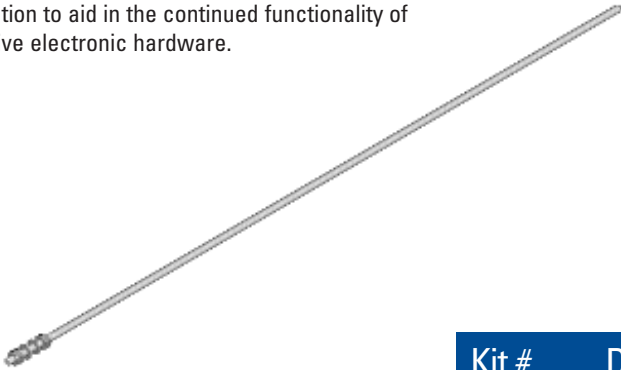
Available with either bare copper or tinned finishes, Radian Buss Bars come in standard size with 14 double holes for ground termination. For special requirements, we can supply virtually any size of solid copper ground buss bar, with variable sizes of holes available for attaching a variety of grounding lugs. They are available with full insulated mounting hardware, and Radian can supply either the standard design, or we can cut and punch whatever custom grounding buss bar you may require to meet your exact connection needs.

Kit #	Description	Qty	Wt #
SGR002	bare copper ground buss bar kit	kit	5
SGR003	tinned copper ground buss bar kit	kit	5



## Grounding

	Kit #	Description	Qty	Wt #
<b>Lightning Rods</b> The importance of proper lightning protection cannot be overstated, as a single lightning strike can disable an entire site if there are substandard grounds. Ensure the highest levels of lightning protection with the installation of a Radian lightning rod. Offering a 5/8" x 5' galvanized steel lightning rod, Radian provides premium lightning protection to aid in the continued functionality of sensitive electronic hardware.	91018A1	5/8" dia. s.r. x 5' 4" lightning rod (galv.)	each	<b>5</b>
	150306	5/8" dia. x 4' (copper)	each	<b>4</b>
	150049	1/2" dia. x 4' (copper)	each	<b>3</b>



	Kit #	Description	Qty	Wt #
<b>Lightning Rod Extension</b>	KGRRNSH	lightning rod extension (mount to square 4" x 4" HSS)	kit of 1	<b>191</b>
	KGRRNRH	lightning rod extension (mount to round 4 1/2" OD HSS)	kit of 1	<b>170</b>

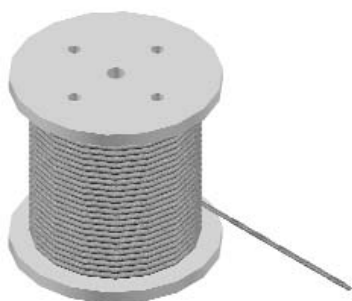


**Note:** Extension Kits include clip angle, U-bolts, crossover plate mountings and 20' (6 m) vertical 2 7/8" OD pipe.

## Grounding

### Copper Wires

Radian offers a variety of copper wires ranging from sizes #10 to #4/0. Depending on the size, both solid and stranded copper wires are available. Also, they can be tinned to visually blend in with galvanized tower mast sections. UV-proof, insulated, jacketed wires provide excellent protection for the grounding system.



Item #	Description
150053	#10 copper solid bare
100080	#10 copper solid RW90-40 black
150061	#8 copper stranded bare
150245	#8 copper solid bare
100119	#8 copper stranded RW90-40 black
150067	#6 copper stranded bare
150290	#6 copper solid bare
100122	#6 copper stranded RW90-40 black
150054	#4 copper stranded bare
150172	#4 copper stranded black UV-proof
150055	#2 copper stranded bare
150056	#2 copper solid bare
150176	#2 copper stranded black UV-proof
150317	#2 copper solid tinned
150180	#2 copper stranded tinned
150258	#2 copper stranded tinned
150329	#1 copper stranded bare
150185	1/0 copper stranded black UV-proof
150269	1/0 copper solid bare
150057	1/0 copper stranded bare
150058	2/0 copper stranded bare
150059	2/0 copper stranded tinned
150073	2/0 copper stranded RW90-40 black
150229	3/0 copper stranded bare
150247	4/0 copper stranded tinned
150060	4/0 copper stranded bare
150211	4/0 copper stranded ins black

## Grounding

### Ultra Ground Electrolytic Grounding System

With the Ultra Ground System, Radian offers a revolutionary grounding method that provides the most dependable, lowest resistance ground possible. With solid copper construction, the Ultra Ground System retains constant metallic electrical properties unmatched by standard zinc- or copper-coated ground rods. The solid copper tube is filled with a blend of non-hazardous metallic salts that absorb moisture and migrate into the surrounding soil. This provides an effective soil-bonding system that improves the electrical performance of the rod while acting as a buffer to protect against corrosive soil conditions. After 25 years of field use, Ultra Ground rods show minimal corrosion, far exceeding the 8- to 12-year lifespan of standard rods. Available with either a straight vertical rod for standard soil conditions, or a special L-shaped rod for rocky terrain, the Ultra Ground system offers unparalleled CSA- and UL-certified grounding solutions.

### Item # Description

#### Earth-Type (Straight) Ultra Ground Rod

SG-UV10S	system (includes rod, backfill & c. cover box)
SG-UV10	model UV-10 (rod only, 45 lbs)

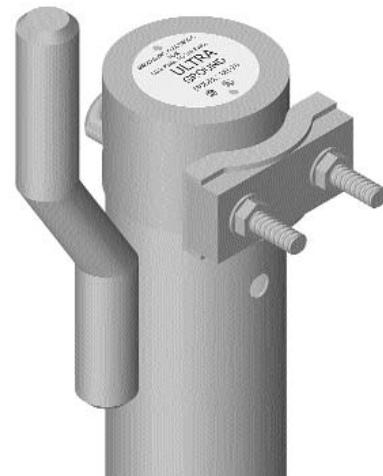
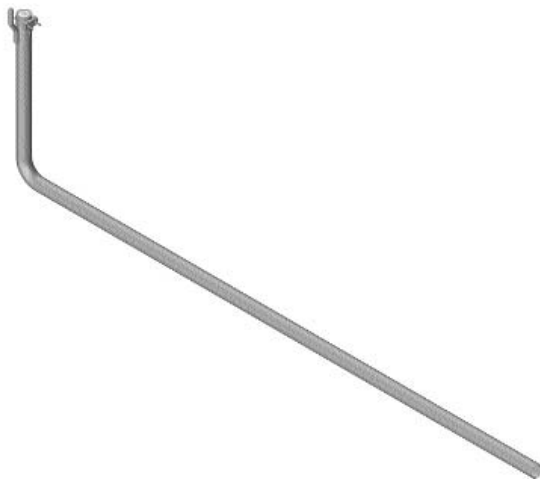
#### Rock-Type (L-Shaped) Ultra Ground Rod

SG-UH10S	system (includes rod, backfill & c. cover box)
SG-UH10	model UH-10 (rod only, 55 lbs)

#### Accessories

SG-UGIP	plastic inspection tube & cover (10 lbs)
150081	ultra ground conc. cover box (70 lbs)
150110	ultra ground backfill (100-lb bag)

**Note:** System price for straight rod includes 2 bags of backfill. System price for L-shaped rod includes 4 bags of backfill.





## Grounding

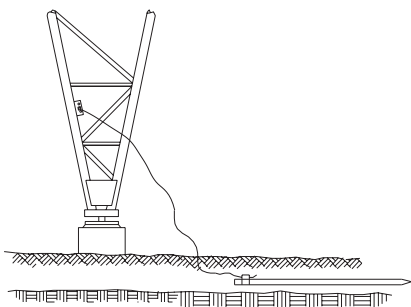
### EIA Grounding Kits

Radian grounding kits comply with the requirements of TIA/EIA-222 Standard. Other grounding kits are available to suit site conditions or specifications. All grounding kits include ground rods, wire (#2 bare stranded copper), and associated hardware. For self-supporting towers, grounding kits include one grounding rod per leg. For guyed towers and monopoles, two grounding rods are included in the kits.

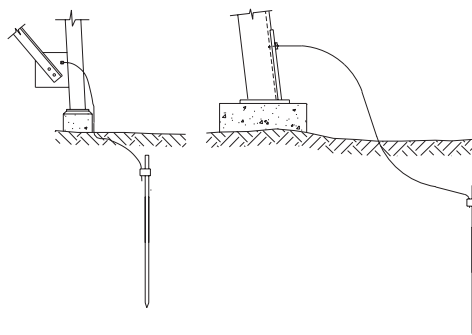
Item #	Description	Qty	Wt #
<b>Self-Supporting Tower Grounding Kits</b>			
KGRRNS01-G	grounding kit for three-leg tower (galvanized rod)	kit	<b>70</b>
KGRRNS01-C	grounding kit for three-leg tower (copper clad rod)	kit	<b>65</b>
KGRRNS02-G	grounding kit for four-leg tower (galvanized rod)	kit	<b>91</b>
KGRRNS02-C	grounding kit for four-leg tower (copper clad rod)	kit	<b>85</b>
<b>Guyed Tower and Monopole Grounding Kits</b>			
KGRRNU01-G	grounding kit for guyed tower base (galvanized rod)	kit	<b>47</b>
KGRRNU01-C	grounding kit for guyed tower base (copper clad rod)	kit	<b>44</b>

**Note:** the above kits are also applicable for self-supporting towers with face width less than 5' (1.5 m).

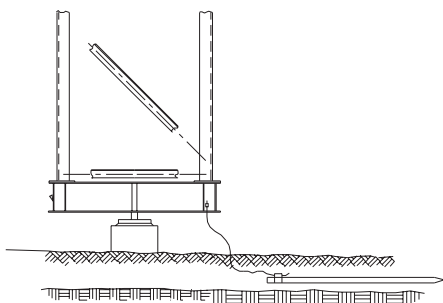
**ROCK CONDITION**



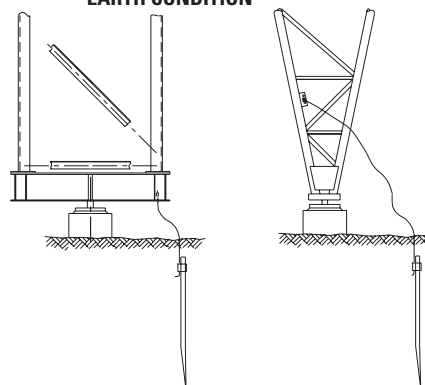
**EARTH CONDITION**



**ROCK CONDITION**



**EARTH CONDITION**



## Grounding

	Item #	Description	Qty	Wt #
EIA Grounding Kits Cont'd	<b>Guy Anchor Grounding Kits</b>			
	KGRRNA01-G	grounding kit for single guy anchor (galvanized rod)	kit	<b>31</b>
	KGRRNA01-C	grounding kit for single guy anchor (copper clad rod)	kit	<b>29</b>

**ROCK CONDITION**



**EARTH CONDITION**




## Grounding Accessories

From electrical tape to lock washers, ground clamps to split bolts, Radian can supply whatever miscellaneous grounding accessories you may require to get the job done.






	Item #	Description	Qty
<b>Ground Rods</b>	150048	3/4" dia. x 10' copper clad	each
	91045B	3/4" dia. x 10' galvanized	each
<b>Ground Rod Clamps</b>	150045	grd clamp wire to cop rod (5/8" to 3/4" rod)	each
	150044	grd clamp wire to galv rod (5/8" to 3/4" rod)	each
<b>Copper Strap</b>	150323	solid copper strap 1" x 1/8"	per foot
	150062	solid copper strap 2" x 1/32"	per foot
	150063	solid copper strap 4" x 1/32"	per foot
	150065	solid copper strap 4" x 1/16"	per foot
<b>Ground Wire to Wire Compression Taps</b>	150039	grd conn (comp) C tap (1/0To4-12) (1To3-4) (2To2-3)	each
	150040	grd conn (comp) C tap (2To6-12) (3To5) (4To4)	each
	150020	grd conn wire – wire (comp) main (1 str – 2/0 str) branch (1 str – 2/0 str)	each
	150114	grd conn (comp) large C tap main (1-4/0) branch (1-2/0)	each






## Grounding Accessories

	Item #	Description	Qty
<b>Ground Wire to Rod Compression Taps</b> 	150018	grd conn wire to rod (comp) (#2 str thru 250 kcmil) (3/4 OD)	each
	150019	grd conn wire to rod (comp) (#2 str thru 2/0 str) (3/4 OD)	each
<b>Ground Wire to Guy Strand Clips</b> 	150001	grd conn 5/16" guy cable	each
	150002	grd conn 3/8" guy cable	each
	150003	grd conn 7/16" to 1/2" guy cable	each
	150004	grd conn 9/16" to 5/8" guy cable	each
	150008	grd conn 5/8" to 3/4" GS or BS	each
	150006	grd conn 3/4" to 1" BS	each
	150007	grd conn 1 1/16" to 1 1/8" BS	each
	150017	grd clamp 1 1/16" to 1 3/8" BS	each

## Grounding Accessories





	Item #	Description	Qty
<b>Ground Stud</b> 	150147	grd conn c/w 3/8" x 1/2" stud 1 wire (8-2 str or 10-2 sol)	each
	150074	grd conn c/w 1/2" x 17/32" stud 1 wire (2-2/0 str or 2-3/0 sol)	each
	150094	grd conn c/w 1/2" x 1 1/4" stud 2 wire (2-2/0 str or 2-3/0 sol)	each
	150076	grd conn c/w 1/2" x 1 1/16" stud 1 wire (2-2/0 str or 2-3/0 sol)	each
	150077	grd conn c/w 1/2" x 3/4" stud 1 wire (2-2/0 str or 2-2/0 sol)	each
	150072	grd conn c/w 1/2" x 9/16" stud 1 wire (2-1/0 str or 2-2/0 sol)	each
<b>Ground Clamp (Wire to Plate)</b> 	150012	grd conn wire to plate	each
	150174	grd conn - 2 cables to bar 4 sol - 2/0 str	each
	150015	grd term wire to plate (4 sol - 1/0 str) (2" x 9/16" holes)	each
	150016	grd term wire to plate (4 sol - 1/0 str) (2" x 7/16" holes)	each
	150022	grd term wire to plate (2/0 sol - 4/0 str) (2" x 9/16" holes)	each
	150158	grd conn wire to plate (2/0 sol - 250)	each

## Grounding Accessories



	Item #	Description	Qty
<b>Ground Clamp (Wire to Wire)</b> 	150069	grd conn wire to wire (10 sol – 2 sol) (10 sol – 2 sol)	each
	150175	grd clamp wire to wire (2 str – 2/0 str) (6 str – 2/0 str)	each
	150013	grd clamp wire to wire (1 str – 4/0 str) (6 str – 2 str)	each
	150023	grd clamp wire to wire (1 str – 4/0 str) (1 str – 4/0 str)	each
	150014	grd clamp wire to wire (250-500 kcmil) (6 str – 2 str)	each
	150024	grd clamp wire to wire (250-500 kcmil) (1 str – 4/0 str)	each
	150025	grd clamp wire to wire (500-1,000 kcmil) (6 str – 2 str)	each
	150116	grd clamp wire to wire (500-1,000 kcmil) (1 str – 4/0 str)	each







## Grounding Accessories

	Item #	Description	Qty
	150011	grd conn wire to pipe tinned (8 sol - 4 str) (7/8" to 1" OD)	each
	150009	grd conn wire to pipe (4 sol - 2/0 str) (7/8" to 1" OD)	each
	150070	grd conn wire to pipe (8 sol - 4 str) (1 1/8" to 1 1/4" OD)	each
	150084	grd conn wire to pipe (4 sol - 2/0 str) (1 1/8" to 1 1/4" OD)	each
	150184	grd conn wire to pipe (2/0 sol - 250 kcmil) (1 1/8" to 1 1/4" OD)	each
	150132	grd conn (1) wire to pipe (8 sol - 4 str) (1 3/8" to 1 1/2" OD)	each
	150142	grd conn wire to pipe (4 sol - 2/0 str) (1 3/8" to 1 1/2" OD)	each
	150153	grd conn wire to pipe (2/0 sol - 250 kcmil) (1 3/8" to 1 1/2" OD)	each
	150128	grd conn wire to pipe (4 sol - 2/0 str) (1 5/8" to 1 7/8" OD)	each
	150250	grd conn wire to pipe (2/0 sol - 250 kcmil) (1 5/8" to 1 7/8" OD)	each
	150139	grd conn wire to pipe (4 sol - 2/0 str) (2" to 2 3/8" OD)	each
	150036	grd conn wire to pipe (2/0 sol - 250 kcmil) (2" to 2 3/8" OD)	each
	150140	grd conn wire to pipe (8 sol - 4 str) (2 1/2" to 2 7/8" OD)	each
	150075	grd conn wire to pipe (4 sol - 2/0 str) (2 1/2" to 2 7/8" OD)	each

## Grounding Accessories

	Item #	Description	Qty
<b>Ground Connector (Wire to Pipe) Cont'd</b>  	150251	grd conn wire to pipe (2/0 – 250 kcmil) (2 1/2" to 2 7/8" OD)	each
	150079	grd conn wire to pipe (4 sol – 2/0 str) (3" to 3 1/2" OD)	each
	150201	grd conn wire to pipe (2/0 – 250 kcmil) (3" to 3 1/2" OD)	each
	150141	grd conn wire to pipe (8 sol – 4 str) (4" to 4 1/2" OD)	each
	150134	grd conn wire to pipe (2/0 sol – 250 kcmil) (4 1/2" OD)	each
	150238	grd conn wire to pipe (2/0 – 250 kcmil) (4" to 4 1/2" OD)	each
	150301	grd conn wire to pipe (8 sol – 4 str) (1 5/8" to 1 7/8" OD)	each
	150321	grd conn wire to pipe (4 str – 4/0 str) (2 1/2" to 3 1/2" OD)	each
	150138	grd conn wire to pipe tinned (4 sol – 2/0 str) (3" to 3 1/2" OD)	each
<b>Ground Wire to Plate</b>  	150042	grd lug wire to plate (6 str – 14 sol) (3/16" bolt hole)	each
	150068	grd lug wire to plate (HD) tinned (0 str – 8 str) (1/4" bolt hole)	each
	150041	grd lug wire to plate tinned (4/0 str – 2 str) (3/8" bolt hole)	each
	150169	grd conn wire to plate surface (6 str – 350 kcmil) (3/8" bolt hole)	each

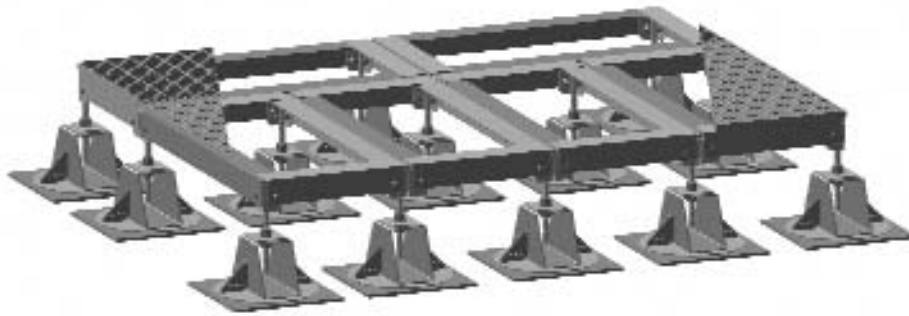
## Grounding Accessories

	Item #	Description	Qty
<b>Caldwell Accessories</b> 	150026	ground mold wire to rod (+frame 2/0 wire to 3/4 rod)	each
	150027	handle clamp (76 mm wide mold)	each
	150028	ground mold tee conn (no frame) 2/0 wire to 2/0 wire	each
	150033	weld metal #115	each
	150032	weld metal #90	each
<b>Corrosion Protection Anodes</b> 	190056	zinc anode (102" dia. x 1,525) c/w 25' #12 sol THW lead wire	each
	190057	magnesium anode (125" dia. x 1,350) c/w 25' #12 sol THW lead wire	each

## Equipment Platforms

	Item #	Description	Qty	Wt #
<b>Equipment Platforms</b> Available in any of the standard sizes 2' x 4', 4' x 4', and 3' x 6,' or in special-order sizing, Radian Equipment Platforms can easily support BTS cabinets and other hardware, either on rooftops or for bare-earth usage. The standard platforms can be easily connected together to give larger platforms, or special-order sizes are available to meet any requirement. Large area footpads are offered in order to disperse weight for rooftop applications, and all legs are independently adjustable to ensure accurate leveling on any terrain. Custom features such as stairs and handrails are also available to meet specific customer needs. Hot-dip galvanized steel construction ensures long-life corrosion protection.	EP001-1	equipment platform – 2' x 4' c/w standard grating	kit of 1	<b>138</b>
	EP001-2	equipment platform – 4' x 4' c/w standard grating	kit of 1	<b>251</b>
	EP001-3	equipment platform – 3' x 6' c/w standard grating	kit of 1	<b>272</b>
	EP001-L	standard equipment platform leg – 16" dia. pad	kit of 1	<b>52</b>
	EP001-C	platform corner L3 x 3 x 1/4 clip angle	kit of 1	<b>2</b>
	EP001-R	18" x 18" x 1/2" thick rubber pad	each	<b>6</b>

**Note:** For special-order sizes, please call to optimize platform arrangement and to determine the number of support legs.

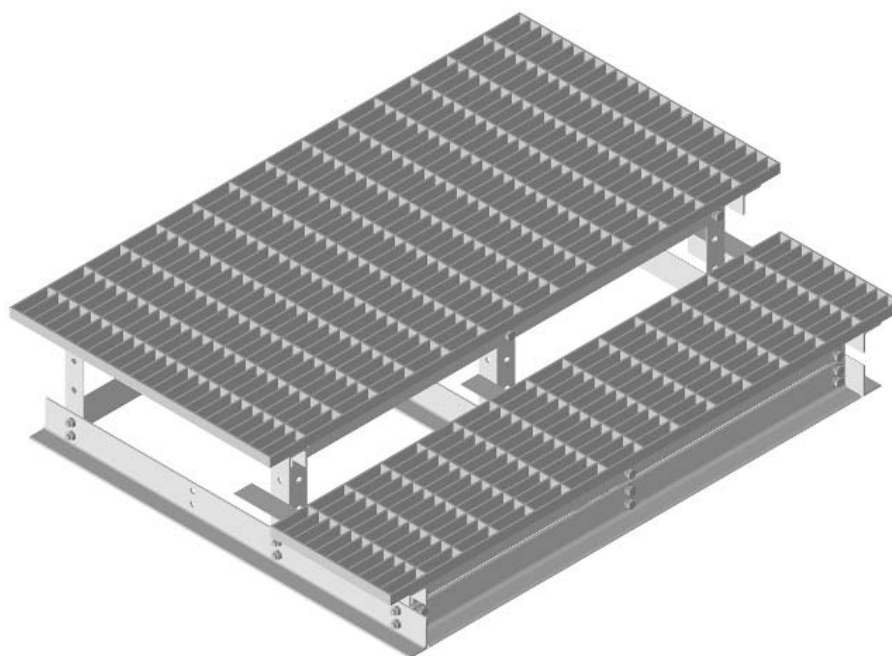


## Shelter Step Frame (Stairs)

### Shelter Step Frame

Built with a simple, sturdy design, this step frame provides a 1' 1 1/2" height increase for stepping into shelters. Easily capable of supporting over 1,000 lbs, the Radian shelter step frame is constructed from hot-dip galvanized steel to ensure long-term corrosion protection.

Item #	Description	Qty	Wt #
SST001-1	shelter step frame - 1,000-lb capacity	kit of 1	269



# site accessories

## Notes

## Notes

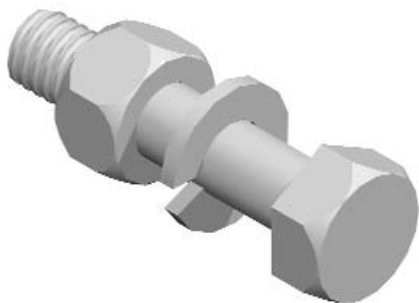
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## Bolt Assemblies – Lock Washer

### ASTM A325 (with Lock Washer)

Each assembly is hot-dip galvanized and includes bolt, lock washer and nut.

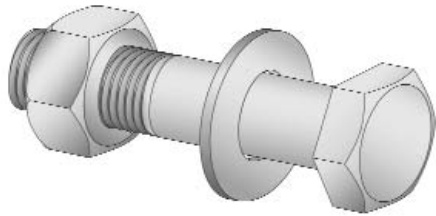


Part #	Description	Qty
110818	1/2" x 1 1/4"	each
110819	1/2" x 1 1/2"	each
110820	1/2" x 1 3/4"	each
110821	1/2" x 2"	each
110822	1/2" x 2 1/4"	each
110823	1/2" x 2 1/2"	each
110825	1/2" x 3"	each
110848	5/8" x 1 1/2"	each
110849	5/8" x 1 3/4"	each
110850	5/8" x 2"	each
110851	5/8" x 2 1/4"	each
110852	5/8" x 2 1/2"	each
110853	5/8" x 2 3/4"	each
110854	5/8" x 3"	each
110855	5/8" x 3 1/4"	each
110856	5/8" x 3 1/2"	each
110857	5/8" x 3 3/4"	each
110860	5/8" x 5"	each
110861	5/8" x 6"	each
110830	3/4" x 1 3/4"	each
110831	3/4" x 2"	each
110832	3/4" x 2 1/4"	each
110833	3/4" x 2 1/2"	each
110834	3/4" x 2 3/4"	each
110835	3/4" x 3"	each
110836	3/4" x 3 1/4"	each
110837	3/4" x 3 1/2"	each
110838	3/4" x 3 3/4"	each
110840	3/4" x 4 1/4"	each
110841	3/4" x 4 1/2"	each
110843	3/4" x 5"	each
110844	3/4" x 6"	each
110864	7/8" x 2 1/4"	each
110865	7/8" x 2 1/2"	each
110866	7/8" x 2 3/4"	each
110867	7/8" x 3"	each
110868	7/8" x 3 1/4"	each
110869	7/8" x 3 1/2"	each
110870	7/8" x 3 3/4"	each
110871	7/8" x 4"	each
110872	7/8" x 4 1/4"	each
110873	7/8" x 4 1/2"	each
110875	7/8" x 5 1/2"	each
110879	1" x 2 3/4"	each
110880	1" x 3"	each
110881	1" x 3 1/4"	each
110882	1" x 3 1/2"	each
110884	1" x 4"	each
110885	1" x 4 1/4"	each
110887	1" x 4 3/4"	each
110888	1" x 5"	each
110889	1" x 6"	each
110890	1" x 7"	each

## Bolt Assemblies – Flat Washer

### ASTM A325 (with Flat Washer)

Each assembly is hot-dip galvanized and includes bolt, flat washer and nut.



Part #	Description	Qty
110001	1/2" x 1 1/4"	each
110002	1/2" x 1 1/2"	each
110003	1/2" x 1 3/4"	each
110004	1/2" x 2"	each
110005	1/2" x 2 1/4"	each
110006	1/2" x 2 1/2"	each
110007	1/2" x 2 3/4"	each
110008	1/2" x 3"	each
110009	5/8" x 1 1/2"	each
110010	5/8" x 1 3/4"	each
110011	5/8" x 2"	each
110012	5/8" x 2 1/4"	each
110013	5/8" x 2 1/2"	each
110014	5/8" x 2 3/4"	each
110015	5/8" x 3"	each
110016	5/8" x 3 1/4"	each
110017	5/8" x 3 1/2"	each
110018	5/8" x 3 3/4"	each
110019	5/8" x 4"	each
110020	5/8" x 4 1/2"	each
110021	5/8" x 5"	each
110022	5/8" x 6"	each
110023	3/4" x 1 1/2"	each
110024	3/4" x 1 3/4"	each
110025	3/4" x 2"	each
110026	3/4" x 2 1/4"	each
110027	3/4" x 2 1/2"	each
110028	3/4" x 2 3/4"	each
110029	3/4" x 3"	each
110030	3/4" x 3 1/4"	each
110031	3/4" x 3 1/2"	each
110032	3/4" x 3 3/4"	each
110033	3/4" x 4"	each
110034	3/4" x 4 1/4"	each
110035	3/4" x 4 1/2"	each
110036	3/4" x 4 3/4"	each
110037	3/4" x 5"	each
110038	3/4" x 6"	each
110040	7/8" x 2 1/4"	each
110041	7/8" x 2 1/2"	each
110042	7/8" x 2 3/4"	each
110043	7/8" x 3"	each
110044	7/8" x 3 1/4"	each
110045	7/8" x 3 1/2"	each
110046	7/8" x 3 3/4"	each
110047	7/8" x 4"	each
110048	7/8" x 4 1/4"	each
110049	7/8" x 4 1/2"	each
110050	7/8" x 5"	each
110051	7/8" x 5 1/2"	each

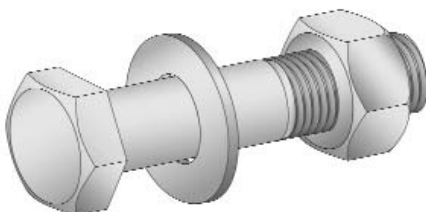
## Bolt Assemblies – Flat Washer

	Part #	Description	Qty
ASTM A325 (with Flat Washer) Cont'd	110053	1" x 2 1/4"	each
	110054	1" x 2 1/2"	each
	110055	1" x 2 3/4"	each
	110056	1" x 3"	each
	110057	1" x 3 1/4"	each
	110058	1" x 3 1/2"	each
	110059	1" x 3 3/4"	each
	110060	1" x 4"	each
	110061	1" x 4 1/4"	each
	110062	1" x 4 1/2"	each
	110063	1" x 4 3/4"	each
	110064	1" x 5"	each
	110065	1" x 5 1/4"	each
	110066	1" x 6"	each
	110067	1" x 7"	each

## Bolt Assemblies – Flat Washer

### SAE Grade 5 (with Flat Washer)

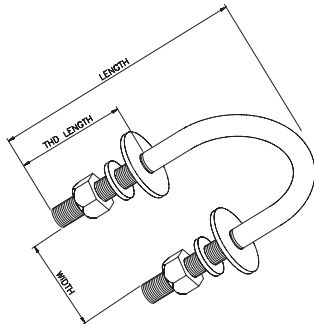
Each assembly is hot-dip galvanized and includes bolt, flat washer and nut.



Part #	Description (SAE Grade 5)	Qty
110080	1/4" x 1"	each
110081	1/4" x 1 1/4"	each
110364	1/4" x 1 1/2"	each
110082	1/4" x 1 3/4"	each
110554	1/4" x 2"	each
110083	1/4" x 2 1/2"	each
110580	1/4" x 3 1/2"	each
110084	5/16" x 1 1/4"	each
110085	5/16" x 1 1/2"	each
110086	5/16" x 2 1/4"	each
110947	5/16" x 3"	each
110926	5/16" x 3 1/2"	each
110927	5/16" x 3 3/4"	each
110087	5/16" x 4"	each
110777	5/16" x 5"	each
110689	5/16" x 5 1/2"	each
110776	5/16" x 7"	each
110459	3/8" x 1"	each
110089	3/8" x 1 1/4"	each
110090	3/8" x 1 1/2"	each
110091	3/8" x 1 3/4"	each
110092	3/8" x 2"	each
110093	3/8" x 2 1/4"	each
110094	3/8" x 2 1/2"	each
110095	3/8" x 2 3/4"	each
110096	3/8" x 3"	each
110097	3/8" x 3 1/4"	each
110098	3/8" x 3 1/2"	each
110099	3/8" x 3 3/4"	each
110100	3/8" x 4"	each
110101	3/8" x 4 1/2"	each
110102	3/8" x 5"	each
110103	3/8" x 5 1/2"	each
110104	3/8" x 6"	each
110105	3/8" x 6 1/2"	each
110106	3/8" x 9"	each
110111	1/2" x 3"	each
110112	1/2" x 3 1/2"	each
110113	1/2" x 3 3/4"	each
110114	1/2" x 4"	each
110115	1/2" x 4 1/2"	each
110116	1/2" x 5"	each
110117	1/2" x 5 1/2"	each
110118	1/2" x 6"	each
110607	5/8" x 5 1/2"	each
110453	5/8" x 7"	each
110125	5/8" x 8"	each

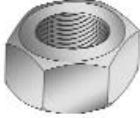





## U-Bolt Assemblies

**U-Bolt**  
Each assembly is hot-dip galvanized and includes bolt, nut, flat & lock washer.


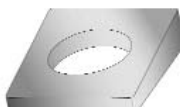




Part #	Description: Diameter x Width x Length	Thread Length	Qty
110246	3/8" x 5/8" x 1 7/8"	7/8"	each
110247	3/8" x 7/8" x 2 3/8"	1 1/4"	each
110248	3/8" x 1 1/4" x 3 1/8"	1 3/4"	each
110249	3/8" x 1 11/16" x 3 3/8"	2"	each
110251	3/8" x 2" x 4 5/16"	2 1/2"	each
110252	3/8" x 2 7/16" x 4 13/16"	2 1/2"	each
110254	1/2" x 1 11/16" x 4 1/4"	2 3/8"	each
110255	1/2" x 2 1/4" x 4 3/4"	2 3/8"	each
110256	1/2" x 2 1/2" x 5 1/4"	2 1/2"	each
110257	1/2" x 2 15/16" x 5 11/16"	2 15/16"	each
110258	1/2" x 3 9/16" x 6 1/4"	2 15/16"	each
110259	1/2" x 4 1/8" x 6 1/4"	3 1/8"	each
110260	1/2" x 4 9/16" x 7 1/4"	2 15/16"	each
110263	5/8" x 3 1/8" x 5 3/4"	2 9/16"	each
110592	5/8" x 3 5/8" x 6 3/16"	2 9/16"	each
110268	5/8" x 4 9/16" x 7 1/8"	2 15/16"	each
110277	5/8" x 6 7/8" x 9 7/16"	2 9/16"	each

## Nuts, Bolts & Rods

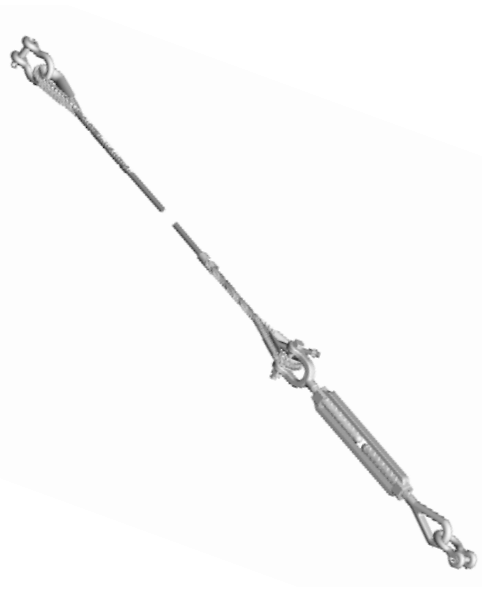
	Part #	Description	Qty
<b>Hex Nuts</b>  	<b>Stainless Steel</b>		
	110169	3/8" dia thread	each
	110467	1/2" dia thread	each
	<b>Grade 2 – Galvanized</b>		
	110140	1/4" dia thread	each
	110142	3/8" dia thread	each
	110144	1/2" dia thread	each
	110145	9/16" dia thread	each
	<b>Grade 2H – Galvanized</b>		
	110143	1/2" – 13 UNC	each
	110146	5/8" – 11 UNC	each
	110148	3/4" – 10 UNC	each
	110149	7/8" – 9 UNC	each
	110150	1" – 8 UNC	each
	110151	1 1/8" – 7 UNC	each
	110152	1 1/4" – 7 UNC	each
<b>Pal Hex Nut</b>  	<b>Galvanized</b>		
	110160	1/2" dia thread	each
	110161	5/8" dia thread	each
	110162	3/4" dia thread	each
	110164	1" dia thread	each
<b>Anco Nuts</b>  	<b>Galvanized</b>		
	110581	1/2" lock nut pin type	each
	110510	5/8" lock nut pin type	each
	110511	3/4" lock nut pin type	each
	110512	7/8" lock nut pin type	each
	110513	1" lock nut pin type	each
<b>J-Bolt Assemblies</b>  	<b>Galvanized</b>		
	110136	3/8" x 4" HDG	each
<b>Step Bolt</b>  	<b>Galvanized</b>		
	110039	3/4" x 8" c/w 2 lw & 2 nuts	each
	111030	5/8" x 7" c/w 1 lw & 2 nuts	each
<b>Threaded Rod</b>  	<b>Stainless Steel</b>		
	111007	3/8" x 6' S/S thd rodeach	
	111008	1/2" x 3' S/S thd rodeach	

## Washers/Spacers




	Part #	Description	Qty
<b>Flat Washers</b>  	<b>Flat Washer – Stainless Steel</b>		
	110225	3/8" flat washer – S/S	each
	110978	1/2" flat washer – S/S	each
	<b>Flat Washer – Galvanized</b>		
	110195	1/4" flat washer	each
	110196	3/8" flat washer	each
	110201	1/2" flat washer	each
	110366	5/8" flat washer	each
	110207	3/4" flat washer	each
	110212	7/8" flat washer	each
	110213	1" flat washer	each
	<b>Hardened Flat Washer (F436) – Galvanized</b>		
	110950	3/8" hdn flat washereach	
	110202	1/2" hdn flat washereach	
	110205	5/8" hdn flat washereach	
	110208	3/4" hdn flat washereach	
	110210	7/8" hdn flat washereach	
	110214	1" hdn flat washer	each
	110216	1 1/8" hdn flat washer	each
	110219	1 1/4" hdn flat washer	each
<b>Bevel Washers</b>  	<b>Bevel Washers (7° Slope) – Galvanized</b>		
	110399	1/2" dia malleable iron	each
	110400	5/8" dia malleable iron	each
	110551	3/4" dia malleable iron	each
<b>Lock Washers</b>  	<b>Lock Washer (Spring) – Stainless Steel</b>		
	110200	3/8" lock washer – S/S	each
	110204	1/2" lock washer – S/S	each
	<b>Lock Washer (Spring) – Galvanized</b>		
	110197	3/8" lock washer	each
	110203	1/2" lock washer	each
	110206	5/8" lock washer	each
	110209	3/4" lock washer	each
	110211	7/8" lock washer	each
	110215	1" lock washer	each
<b>Bolt Spacers</b>  	<b>Ring Fills (Sch 40 Pipe) – Galvanized</b>		
	<b>1/2" to 3/4" Diameter Bolts</b>		
	110187	1/4" long	each
	110189	3/8" long	each
	110191	1/2" long	each
	110192	5/8" long	each
	110193	3/4" long	each
	110194	1 1/4" long	each
	110389	7/8" long	each
	110390	1" long	each
	<b>7/8" to 1 1/4" Diameter Bolts</b>		
	110393	1/2" long	each
	110394	5/8" long	each
	110395	3/4" long	each
	110396	7/8" long	each
	110397	1" long	each



## Guy Cable Material

	Kit #	Description	Kit Qty
<b>Guy Cable Hardware Kits</b> <p>The Guy Cable Hardware Kits contain all of the necessary components required for a single guy cable connection. Each kit has been engineered so that all items in the hardware assembly kit are appropriate for that specific guy size. The kits are available for three guy cable types: guy strand (Grade 180), EHS (extra high strength) and bridge strand. All of the individual pieces are hot-dip galvanized to provide corrosion protection in the harshest of environments.</p> 	SGY001-1	5/16" guy & EHS strand hardware assembly	each
	SGY001-2	3/8" guy & EHS strand hardware assembly	each
	SGY001-3	7/16" guy & EHS strand hardware assembly	each
	SGY001-4	1/2" guy & EHS strand hardware assembly	each
	SGY001-5	9/16" guy & EHS strand hardware assembly	each
	SGY001-6	5/8" guy & EHS strand hardware assembly	each
	SGY002-1	3/4" EHS strand hardware assembly	each
	SGY002-2	7/8" EHS strand hardware assembly	each
	SGY002-3	1" EHS strand hardware assembly	each
	SGY003-1	1/2" bridge strand hardware assembly	each
	SGY003-2	9/16" bridge strand hardware assembly	each
	SGY003-3	5/8" bridge strand hardware assembly	each
	SGY003-4	11/16" bridge strand hardware assembly	each
	SGY003-5	3/4" bridge strand hardware assembly	each
	SGY003-6	13/16" bridge strand hardware assembly	each
	SGY003-7	7/8" bridge strand hardware assembly	each

## Guy Cable Material

	Part #	Description	Qty
<b>Shackles</b>  	<b>Screw Pin (Type G-209) – Galvanized</b>		
	140034	1/4" nominal size	each
	140035	5/16" nominal size	each
	140036	3/8" nominal size	each
	140037	1/2" nominal size	each
	140038	5/8" nominal size	each
	140039	3/4" nominal size	each
	140040	7/8" nominal size	each
	140041	1" nominal size	each
	140042	1 1/8" nominal size	each
	140043	1 1/4" nominal size	each
	140044	1 3/8" nominal size	each
	140045	1 1/2" nominal size	each
	140046	1 3/4" nominal size	each
	140050	2" nominal size	each
	140213	2 1/2" nominal size	each
<b>Jaw-Eye Turnbuckles</b>  	<b>Type HG227 – Galvanized</b>		
	140051	3/8" x 6" long	each
	140053	1/2" x 12" long	each
	140054	5/8" x 12" long	each
	140056	3/4" x 18" long	each
	140057	7/8" x 18" long	each
	140058	1" x 18" long	each
	140060	1 1/4" x 18" long	each
	140061	1 1/2" x 18" long	each
	140064	1 3/4" x 18" long	each
	140067	2" x 24" long	each
	Meets Federal Specification FF-7-79lb Type I Form 1 Class 8		
<b>Thimbles</b>  	<b>Galvanized</b>		
	140071	1/4" standard	each
	140072	5/16" standard	each
	140073	3/8" standard	each
	140074	3/8" heavy	each
	140075	1/2" heavy	each
	140076	9/16" heavy	each
	140077	5/8" heavy	each
	140078	3/4" heavy	each
	140079	7/8" heavy	each
	140080	1" heavy	each
	140081	1 1/8" to 1 1/4" heavy	each
	140082	1 1/4" to 1 3/8" heavy	each
	Meets Federal Specification FF-T-276b Type II or III		

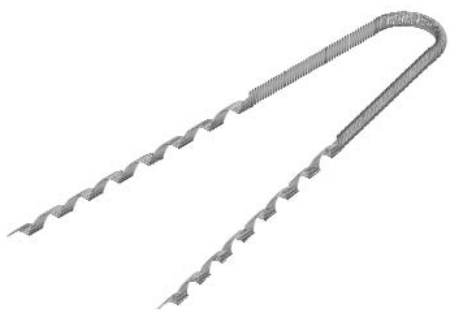
## Guy Cable Material

### Guy Wire



Part #	Description	Qty
<b>Grade 180 Wire Strand – Galvanized</b>		
140027	1/4" dia – 7 strand	foot
140028	5/16" dia – 7 strand	foot
140029	3/8" dia – 7 strand	foot
140030	7/16" dia – 7 strand	foot
140031	1/2" dia – 7 strand	foot
140032	9/16" dia – 7 strand	foot
140033	5/8" dia – 7 strand	foot
<b>Extra High Strength (EHS) – Galvanized</b>		
142265	5/16" dia – 7 strand	foot
142261	3/8" dia – 7 strand	foot
142260	7/16" dia – 7 strand	foot
142259	1/2" dia – 7 strand	foot
142258	9/16" dia – 7 strand	foot
142264	5/8" dia – 7 strand	foot
142257	3/4" dia – 19 strand	foot
142256	7/8" dia – 19 strand	foot
142255	1" dia – 19 strand	foot
<b>Bridge Strand (ASTM A-586) – Galvanized</b>		
140192	1/2" dia – 19 strand	foot
140260	9/16" dia – 19 strand	foot
140152	5/8" dia – 19 strand	foot
140249	11/16" dia – 19 strand	foot
140141	3/4" dia – 19 strand	foot
140261	13/16" dia – 19 strand	foot
140225	7/8" dia – 19 strand	foot
<b>Grade 180 &amp; EHS Grips – Galvanized</b>		
140012	1/4" dia guy strand	each
140013	5/16" dia guy strand	each
140014	3/8" dia guy strand	each
140015	7/16" dia guy strand	each
140016	1/2" dia guy strand	each
140017	9/16" dia guy strand	each
140018	5/8" dia guy strand	each
A51900	3/4" dia guy strand	each
A52100	7/8" dia guy strand	each
140219	1" dia guy strand	each
<b>Bridge Strand Grips – Galvanized</b>		
140157	1/2" dia bridge strand	each
140019	9/16" dia bridge strand	each
140020	5/8" dia bridge strand	each
140024	11/16" dia bridge strand	each
140021	3/4" dia bridge strand	each
140023	13/16" dia bridge strand	each
140022	7/8" dia bridge strand	each

### Dead End Grip



**Note:** Rocket-Socket™ deadends are available for bridge strand sizes 3/4" Ø to 1 7/16" Ø.

# transmission lines & accessories

## Product Summary

### Transmission Lines & Accessories

Radian represents leading suppliers of transmission lines, such as Andrew, Eupen and RFS. Andrew and RFS offer a full range of products, including foam and air dielectric coax, rigid line and elliptical waveguide. Eupen specializes in high-performance, low-loss foam transmission line. All three companies offer a comprehensive array of connectors and installation accessories to fit most wireless installation applications.



**Foam Dielectric Coax**



**Rigid Coax**



**Air Dielectric Coax**



**Elliptical Waveguide**



**Tx-Line Hanger**



**Grounding Kit**



**Hoisting Grip**



**Entry Port Boot**

# transmission lines & accessories

## Foam Dielectric Coax

### Andrew Foam Coax (1/4" to 7/8")

FOAM CABLE	1/4" SUPERFLEX	1/2" SUPERFLEX	1/2" FOAM	7/8" FLEXIBLE
	FSJ1-50A	FSJ4-50B	LDF4-50A	VXL5-50
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD CABLE	FSJ1-50A	FSJ4-50B	LDF4-50A	VXL5-50
LOW VSWR	FSJ1P-50A	FSJ4P-50B	LDF4P-50A	VXL5P-50
FIRE RET JKT	FSJ1RN-50A	FSJ4RN-50B	LDF4RN-50A	VXL5RN-50

CONNECTORS	1/4" SUPERFLEX	1/2" SUPERFLEX	1/2" FOAM	7/8" FLEXIBLE
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
N-MALE OP	-	-	-	V5PNM-RPC
N-MALE RF	-	-	L4PNM-RC	-
N-MALE PREM H	F1PNMV2-H	F4PNMV2-HC	L4PNM-H	-
N-MALE RA H	F1PNR-HC	F4PNR-HC	L4PNR-HC	-
N-FEM OP	-	-	-	V5PNF-RPC
N-FEM RF	-	-	L4PNF-RC	-
N-FEM PREM	F1PNF	F4PNF-C	L4PNF	-
N-FEM BH	F1PNF-BH	F4PNF-BH	L4PNF-BH	-
N-FEM PNL	-	-	L4PNF-PM	-
4.1/9.5 DIN M	-	F4PKM-C	-	-
4.1/9.5 DIN M RA	-	F4PKR-C	-	-
7/16 DIN M OP	-	-	-	V5PDM-RPC
7/16 DIN M RF	-	-	L4PDM-RC	-
7/16 DIN M	F1PDM	F4PDMV2-C	L4PDM	-
7/16 DIN M RA	-	F4PDR-C	L4PDR-C	-
7/16 DIN F OP	-	-	-	V5PDF-RPC
7/16 DIN F RF	-	-	L4PDF-RC	-
7/16 DIN F	F1PDF	F4PDF-C	L4PDF	-
7/16 DIN F BH	-	-	L4PDF-BHC	-
7/16 DIN F PNL	F1PDF-BH	F4PDF-BHC	L4PDF-PM	-
UHF MALE	F1PDF-PM	F4PDF-PMC	L44P	-
UHF FEM	44SP	44ASP	L44U	-
EIA 7/8"41U	<b>\$58.30</b>	<b>\$41.80</b>	<b>\$117.20</b>	-
EIA 1 5/8"	-	44ASR	-	V5E78
F FLANGE MALE	-	-	L44F	-
SPLICE	-	-	L44Z	-
END TERM	-	-	L44T	-

ACCESSORIES	1/4" SUPERFLEX	1/2" SUPERFLEX	1/2" FOAM	7/8" FLEXIBLE
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	-	43211A	43211A	42396A-5
INSU HGR KIT	-	11662-3	11662-3	11662-2
HDWE KIT	-	31769-1	31769-1	31769-1
RND ADP KIT	-	31670-X	31670-X	31670-X
ANG ADP KIT	-	31768A	31768A	31768A
CEIL ADP KIT	-	31771	31771	31771
HOIST GRIP	-	-	43094	19256B
CLAMP GRIP	F1SGRIP	F4SGRIP	L4SGRIP	L5SGRIP
W/R FD THRU	-	-	40656A-3	40656A-1
GROUND KIT	-	241088-1	241088-1	241088-2
SUREGROUND	-	-	SGL4-06B2	SGL5-06B2
WTHRPF KIT	-	-	221213	221213

# transmission lines & accessories

## Foam Dielectric Coax

### Andrew Foam Coax (7/8" to 2 1/4")

FOAM CABLE	7/8" FOAM	1 1/4" FOAM	1 5/8" FOAM	2 1/4" FOAM
	LDF5-50A	LDF6-50	LDF7-50A	LDF12-50
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD. CABLE	LDF5-50A	LDF6-50	LDF7-50A	LDF12-50
LOW VSWR	LDF5P-50A	LDF6P-50	LDF7P-50A	LDF12P-50
FIRE RET JKT	LDF5RN-50A	LDF6RN-50	LDF7RN-50A	LDF12RN-50

CONNECTORS	7/8" FOAM	1 1/4" FOAM	1 5/8" FOAM	2 1/4" FOAM
	PART NO.	PART NO.	PART NO.	PART NO.
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
N-MALE OP	L5PNM-RPC	L6PNM-RPC	L7PNM-RPC	-
N-MALE RF	L5PNM-RC	-	-	-
N-MALE PREM H	L5PNM-H	L6PNM-H	L7PNM-H	-
N-MALE RA H	-	-	-	-
N-FEM OP	L5PNF-RPC	L6PNF-RPC	L7PNF-RPC	-
N-FEM RF	L5PNF-RC	L6PNF-RC	L7PNF-RC	-
N-FEM PREM	L5PNF	L6PNF	L7PNF	L12PNF
N-FEM BH	-	-	-	-
N-FEM PNL	-	-	-	-
4.1/9.5 DIN M	-	-	-	-
4.1/9.5 DIN M RA	-	-	-	-
7/16 DIN M OP	L5PDM-RPC	L6PDM-RPC	L7PDM-RPC	-
7/16 DIN M RF	L5PDM-RC	-	-	-
7/16 DIN M	L5PDM	L6PDM	L7PDM	L12PDM
7/16 DIN M RA	L5PDR	-	-	-
7/16 DIN F OP	L5PDF-RPC	L6PDF-RPC	L7PDF-RPC	-
7/16 DIN F RF	L5PDF-RC	L6PDF-RC	L7PDF-RC	-
7/16 DIN F	L5PDF	L6PDF	L7PDF	L12PDF
7/16 DIN F BH	L5PDF-BH	L6PDF-BH	L7PDF-BH	-
7/16 DIN F PNL	L5PDF-PM	-	-	-
UHF MALE	L45P	-	-	-
UHF FEM	L45U	-	-	-
EIA 7/8"	L45R	L46S	L47S	-
EIA 1 5/8"	-	L46R	L47R	-
F FLANGE MALE	L45F	L46F	L47F	-
SPLICE	L45Z	L46Z	L47Z	L12Z
END TERM	L45T	-	-	-

ACCESSORIES	7/8" FOAM	1 1/4" FOAM	1 5/8" FOAM	2 1/4" FOAM
	PART NO.	PART NO.	PART NO.	PART NO.
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	42396A-5	42396A-1	42396A-2	42396A-4
INSU HGR KIT	11662-2	33948-5	33948-3	33948-6
HDWE KIT	31769-1	31769-1	31769-1	31769-1
RND ADP KIT	31670-X	31670-X	31670-X	31670-X
ANG ADP KIT	31768A	31768A	31768A	31768A
CEIL ADP KIT	31771	31771	31771	31771
HOIST GRIP	19256B	29961	24312A	31535
CLAMP GRIP	L5SGRIP	L6SGRIP	L7SGRIP	L12SGRIP
W/R FD THRU	40656A-1	40656A-5	40656A-2	40656A-6
GROUND KIT	241088-2	241088-3	241088-4	241088-5
SUREGROUND	SGL5-06B2	SGL6-06B2	SGL7-06B2	SGL12-06B2
WTHRPF KIT	221213	221213	221213	221213

# transmission lines & accessories

## Foam Dielectric Coax

### RFS Cablewave Foam Coax (1/4" to 7/8")

FOAM CABLE	1/4" SUPERFLEX	1/2" SUPERFLEX	1/2" FOAM	7/8" ULTRAFLEX
	SCF14-50	SCF12-50	LCF12-50	UCF78-50
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD CABLE	811028-001	811026-001	810918-001	811049-001
LOW VSWR	811028-003	811026-003	810918-003	811049-003
CELL/PCS BND	811028-083	811026-083	810918-083	811049-083
FIRE RET JKT	811028-F01	811026-F01	810918-F01	811049-F01
CONNECTORS	1/4" SUPERFLEX	1/2" SUPERFLEX	1/2" FOAM	7/8" ULTRAFLEX
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
N-MALE STD	734779	734904	738802-A	-
N-MALE PREM	-	-	734803-A	736007
N-MALE SG HH	734769	734864	734868	-
N-MALE RA	734874	-	734845	-
N-MALE RAHH	-	734897	734921	-
N-FEM STD	734780	734710	738801-A	-
N-FEM PREM	734817-B	734932	734806-A	736008
4.1/9.5 DIN M	-	-	-	-
4.1/9.5 DIN M RA	-	-	-	-
7/16 DIN M PREM	-	734832	734750	736009
7/16 DIN M RA	-	734931	734916	-
7/16 DIN F PREM	-	734833	734751	736010
7/16 DIN F RA	-	734901	734900	-
7/16 DIN F BH	-	-	-	-
7/16 DIN F PNL	-	-	-	-
UHF MALE	734924	734745	738804	-
UHF FEM	734925	734923	738803-A	-
EIA 7/8"	-	734898	738807	-
EIA 1 5/8"	-	-	-	-
F FLANGE MALE	-	-	-	-
SPLICE	-	-	738806-A	-
END TERM	-	-	738805	-
ACCESSORIES	1/4" SUPERFLEX	1/2" SUPERFLEX	1/2" FOAM	7/8" ULTRAFLEX
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	-	920981-010	920981-010	920981-007
INSU HGR KIT	-	920150-001	920150-001	920150-002
HDWE KIT	-	915006	915006	915006
RND ADP KIT	-	514542-00X	514542-00X	514542-00X
ANG ADP KIT	-	915255	915255	915255
CEIL ADP KIT	-	514608-003	514608-003	514608-003
HOIST GRIP	-	-	910303	910307
W/R FD THRU	-	-	920432-002	920433
GROUND KIT	-	926382	916382	916386
WTHRPF KIT	-	-	916132	916132



# transmission lines & accessories

## Foam Dielectric Coax

### RFS Cablewave Foam Coax (7/8" to 2 1/4")

FOAM CABLE	7/8" FOAM	1 1/4" FOAM	1 5/8" FOAM	2 1/4" FOAM
	LCF78-50	LCF114-50	LCF158-50	LCF214-50
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD CABLE	810921-001	810916-001	810920-001	811046-001
LOW VSWR	810921-003	810916-003	810920-003	811046-003
CELL/PCS BND	810921-083	810916-083	810920-083	811046-083
FIRE RET JKT	810921-F01	810916-F01	810920-F01	811046-F01
CONNECTORS	7/8" FOAM	1 1/4" FOAM	1 5/8" FOAM	2 1/4" FOAM
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
N-MALE STD	738841	738882	738850	734950
N-MALE PREM	734804	-	-	-
N-MALE SG HH	-	734838	734840	-
N-MALE RA	-	-	-	-
N-MALE RAHH	-	-	-	-
N-FEM STD	738842	738883	738851	734949
N-FEM PREM	734837	734839	738863	-
4.1/9.5 DIN M	-	-	-	-
4.1/9.5 DIN M RA	-	-	-	-
7/16 DIN M PREM	734737	734753	734755	734948
7/16 DIN M RA	734919	-	-	-
7/16 DIN F PREM	734752	734754	734756	734947
7/16 DIN F RA	734920	-	-	-
7/16 DIN F BH	734752-B	-	-	-
7/16 DIN F PNL	-	-	-	-
UHF MALE	738843	738886	-	-
UHF FEM	738844	738887	-	-
EIA 7/8"	738845	738880	738854	-
EIA 1 5/8"	-	738881	738853	-
F FLANGE MALE	-	-	-	-
SPLICE	738846	738885	738855	-
END TERM	738847	738884	738856	-
ACCESSORIES	7/8" FOAM	1 1/4" FOAM	1 5/8" FOAM	2 1/4" FOAM
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	920981-007	920981-004	920981-012	920981-001
INSU HGR KIT	920150-002	920161-009	920161-003	921151
HDWE KIT	915006	915006	915006	915006
RND ADP KIT	514542-00X	514542-00X	514542-00X	514542-00X
ANG ADP KIT	915255	915255	915255	915255
CEIL ADP KIT	514608-003	514608-003	514608-003	514608-003
HOIST GRIP	910307	915158	910311	914988
W/R FD THRU	920433	920867	920434	921132
GROUND KIT	916386	916389	916392	916395
WTHRP KIT	916132	916132	916132	916132

# transmission lines & accessories

## Foam Dielectric Coax

### Eupen Foam Coax (1/4" to 7/8")

FOAM CABLE		1/4" HIFLEX		1/2" HIFLEX		1/2" FOAM		7/8" HIFLEX	
		EC1HF-50		EC4HF-50		EC4-50		EC5HF-50	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.		
STD CABLE	4051		6261		7657		B601		
FIRE RET JKT	4530		9031		1740		B601FR		

CONNECTORS		1/4" HIFLEX		1/2" HIFLEX		1/2" FOAM		7/8" HIFLEX	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.		
N-MALE PREM	6533		4790		1778		1786		
N-FEM PREM	6534		4792		1783		1794		
7/16 DIN M	-		4793		1784		1795		
7/16 DIN F	-		4794		1785		1796		

ACCESSORIES		1/4" HIFLEX		1/2" HIFLEX		1/2" FOAM		7/8" HIFLEX	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.		
STD HGR KIT	-		-		EUBH-12		EUBH-78		
INSU HGR KIT	-		-		-		-		
SNAP-IN HGR KIT	-		-		EUSH-U12		EUSH-U78		
HARDWARE KIT	-		-		EUHK-100-10		EUHK-100-10		
RND ADP KIT	-		-		EURM-X		EURM-X		
ANG ADP KIT	-		-		EUAA-SL		EUAA-SL		
SNAP-IN AA KIT	-		-		EUAA-US		EUAA-US		
MINI COAX BLOCKS	-		-		EUCB-12		EUCB-78		
COAX BLK HDWE KIT	-		-		EUHK-CB78		EUHK-CB78		
SS WRAPLOCK	-		-		EUMT-640		EUMT-640		
HOIST GRIP	-		-		EUHG-12		EUHG-78		
CLAMP GRIP	-		-		EUHG-C12		EUHG-C78		
GROUND KIT	-		-		EUGK-S12		EUGK-S78		
CLIP-ON GRD KIT	-		-		EUGK-C12		EUGK-C78		
PREM CLIP-ON GRD KT	-		-		EUGCS-12		EUGCS-78		
WTHRPF KIT	-		-		EUWK-U		EUWK-U		

# transmission lines & accessories

## Foam Dielectric Coax

### Eupen Foam Coax (7/8" to 2 1/4")

FOAM CABLE	7/8" FOAM EC5-50		1 1/4" FOAM EC6-50		1 5/8" FOAM EC7-50		2 1/4" FOAM EC12-50	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STD CABLE	7658		0369		1109		6326	
FIRE RET JKT	1110		1060		4829		6326FR	
CONNECTORS	7/8" FOAM		1 1/4" FOAM		1 5/8" FOAM		2 1/4" FOAM	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
N-MALE PREM	1786		1799		1843		-	
N-FEM PREM	1794		1808		1845		-	
7/16 DIN M	1795		1848		1848		A500	
7/16 DIN F	1796		1851		1851		A501	
ACCESSORIES	7/8" FOAM		1 1/4" FOAM		1 5/8" FOAM		2 1/4" FOAM	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STD HGR KIT	EUBH-78		EUBH-114		EUBH-158		EUBH-214	
INSU HGR KIT	-		-		-		-	
SNAP-IN HGR KIT	EUSH-U78		EUSH-U114		EUSH-U158		EUSH-U214	
HARDWARE KIT	EUHK-100-10		EUHK-100-10		EUHK-100-10		EUHK-100-10	
RND ADP KIT	EURM-X		EURM-X		EURM-X		EURM-X	
ANG ADP KIT	EUAA-SL		EUAA-SL		EUAA-SL		EUAA-SL	
SNAP-IN AA KIT	EUAA-US		EUAA-US		EUAA-US		EUAA-US	
MINI COAX BLOCKS	EUCB-78		EUCB-114		EUCB-158		EUCB-214	
COAX BLK HDWE KIT	EUHK-CB78		EUHK-CB158		EUHK-CB158		EUHK-CB214	
SS WRAPLOCK	EUMT-640		EUMT-640		EUMT-640		EUMT-640	
HOIST GRIP	EUHG-78		EUHG-114		EUHG-158		EUHG-214	
CLAMP GRIP	EUHG-C78		EUHG-C114		EUHG-C158		EUHG-C214	
GROUND KIT	EUGK-S78		EUGK-S114		EUGK-S158		EUGK-S214	
CLIP-ON GRD KIT	EUGK-C78		EUGK-C114		EUGK-C158		EUGK-C214	
PREM CLIP-ON GRD KT	EUGCS-78		EUGCS-114		EUGCS-158		EUGCS-214	
WTHRPF KIT	EUWK-U		EUWK-U		EUWK-U		EUWK-U	

# transmission lines & accessories

## Air Dielectric Coax

### Andrew Air Coax (1/2" to 1 5/8")

AIR CABLE	1/2" AIR	5/8" AIR	7/8" AIR	1 5/8" AIR
	HJ4-50	HJ4.5-50	HJ5-50	HJ7-50A
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD CABLE	HJ4-50	HJ4.5-50	HJ5-50	HJ7-50A
LOW VSWR	HJ4P-50	HJ4.5P-50	HJ5P-50	HJ7P-50A
FIRE RET JKT	HJ4RN-50	HJ4.5RN-50	HJ5RN-50	HJ7RN-50A
CONNECTORS	1/2" AIR	5/8" AIR	7/8" AIR	1 5/8" AIR
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
N-MALE STD	-	-	-	-
N-MALE PREM	H4PNM	H4.5PNM	H5PNM	-
N-MALE TUN	-	-	H5NM-T	H7NM-T
N-FEM STD	-	-	-	-
N-FEM PREM	H4PNF	-	H5PNF	H7PNF
N-FEM TUN	-	-	H5NF-T	H7NF-T
7/16 DIN M	H4PDM	H4.5PDM	H5PDM	H7PDM
7/16 DIN F	-	-	H5PDF	H7PDF
EIA 7/8" GP	H4MPB-014	-	75AR	H7MP-014
EIA 7/8" GP TUN	-	-	75ART	87ST
EIA 7/8" GB	H4MPB-014	-	H5MB-014	H7MB-014
EIA 7/8" GB TUN	-	-	75AGT	87SGT
EIA 1 5/8" GP	-	-	H5MPB-110	87R
EIA 1 5/8" GB	-	-	H5MPB-110	87G
EIA 3 1/8" GP	-	-	-	-
EIA 3 1/8" GB	-	-	-	-
IEC 4 1/2" GP	-	-	-	-
IEC 4 1/2" GB	-	-	-	-
EIA 6 1/8" GP	-	-	-	-
EIA 6 1/8" GB	-	-	-	-
SPLICE	74Z	85Z	75AZ	87Z
END TERM	74T	-	75AT	87T
ACCESSORIES	1/2" AIR	5/8" AIR	7/8" AIR	1 5/8" AIR
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	43211A	42396A-9	42396A-5	42396A-2
INSU HGR KIT	11662-3	-	11662-2	33948-3
HDWE KIT	31769-1	31769-1	31769-1	31769-1
RND ADP KIT	31670-X	31670-X	31670-X	31670-X
ANG ADP KIT	31768A	31768A	31768A	31768A
AA (IN HR) KIT	40430-1	-	40430-1	13555A
CEIL ADP KIT	31771	31771	31771	31771
HOIST GRIP	43094	29958	19256B	24312A
W/R FD THRU	40656A-3	40656A-7	40656A-1	40656A-2
GROUND KIT	241088-1	241088-2	241088-2	241088-4
WTHRPF KIT	221213	221213	221213	221213

# transmission lines & accessories

## Air Dielectric Coax

### Andrew Air Coax (2 1/4" to 5" HP)

AIR COAX	2 1/4" AIR	3" AIR	4" AIR	5" AIR	5" HP AIR
	HJ12-50	HJ8-50B	HJ11-50	HJ9-50	HJ9HP-50
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.

STD CABLE	HJ12-50	HJ8-50B	HJ11-50	HJ9-50	HJ9HP-50
LOW VSWR	HJ12P-50	42141	42144	42142	-
FIRE RET JKT	HJ12RN-50	-	-	-	-

CONNECTORS	2 1/4" AIR	3" AIR	4" AIR	5" AIR	5" HP AIR
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.

N-MALE STD	-	-	-	-	-
N-MALE PREM	-	-	-	-	-
N-MALE TUN	-	-	-	-	-
N-FEM STD	-	-	-	-	-
N-FEM PREM	H12PNF	-	-	-	-
N-FEM TUN	-	-	-	-	-
7/16 DIN M	H12PDM	-	-	-	-
7/16 DIN F	-	-	-	-	-
EIA 7/8" GP	82S	-	-	-	-
EIA 7/8" GP TUN	-	-	-	-	-
EIA 7/8" GB	-	-	-	-	-
EIA 7/8" GB TUN	-	-	-	-	-
EIA 1 5/8" GP	82R	78AS	-	-	-
EIA 1 5/8" GB	-	-	-	-	-
EIA 3 1/8" GP	82RF	H8MP-302	H11MP-302	-	-
EIA 3 1/8" GB	82GF	H8MB-302	H11MB-302	-	-
IEC 4 1/2" GP	-	-	H11MP-408	H9MP-408	-
IEC 4 1/2" GB	-	-	H11MB-408	H9MB-408	-
EIA 6 1/8" GP	-	-	H11MP-602	H9MP-602	H9HPMP-602
EIA 6 1/8" GB	-	-	H11MB-602	H9MB-602	H9HPMB-602
SPLICE	82Z	78BZ	81Z	79AZ	H9HPZ
END TERM	-	-	-	-	-

ACCESSORIES	2 1/4" AIR	3" AIR	4" AIR	5" AIR	5" HP AIR
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.

STD HGR KIT	42396A-4	31766A-11	31766A-10	33598-5	33598-5
INSU HGR KIT	33948-6	33948-2	33948-4	33948-1	33948-1
HDWE KIT	31769-1	31769-1	31769-1	31769-4	31769-4
RND ADP KIT	31670-X	31670-X	31670-X	-	-
ANG ADP KIT	31768A	31768A	31768A	33981A-1	33981A-1
AA (IN HR) KIT	13555A	13555A	13555A	13555A	13555A
CEIL ADPT KIT	31771	31771	31771	-	-
HOIST GRIP	31535	26985A	34759	31031-1	31031-1
W/R FD THRU	40656A-6	40394-2	40394-1	33938-5	33938-5
GROUND KIT	241088-5	241088-5	204989-6	204989-7	204989-7
WTHRPF KIT	221213	221213	221213	221213	221213

# transmission lines & accessories

## Air Dielectric Coax

### RFS Cablewave Air Coax (1/2" to 2 1/4")

AIR CABLE	1/2" AIR		7/8" AIR		1 5/8" AIR		2 1/4" AIR	
	HCC12-50J		HCC78-50J		HCC158-50J		HCC214-50J	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STD CABLE	810901-001		810929-001		810903-001		811031-001	
LOW VSWR	810901-003		810929-004		810903-004		811031-003	
CELL/PCS BND	810901-083		810929-083		810903-083		811031-083	
FIRE RET JKT	810901-F01		810929-F01		810903-F01		811031-F01	
CONNECTORS	1/2" AIR		7/8" AIR		1 5/8" AIR		2 1/4" AIR	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
N-MALE STD	738200		738225		738300		738375	
N-MALE SG	-		738247		-		-	
N-MALE TUN	-		738234		738330		-	
N-FEM STD	738201		738226		738301		738376	
N-FEM SG	-		-		734883		734939	
N-FEM TUN	-		738235		738331		-	
EIA 7/8" GP	738211		738230		738311		738381	
EIA 7/8" GP TUN	-		738238		738332		-	
EIA 7/8" GB	738207		738229		738304		738382	
EIA 7/8" GB TUN	-		738239		738333		-	
EIA 1 5/8" GP	-		-		738314		738379	
EIA 1 5/8" GB	-		-		738303		738380	
EIA 3 1/8" GP	-		-		-		738377	
EIA 3 1/8" GB	-		-		-		738378	
3 1/8" BULLET	-		-		-		-	
IEC 4 1/2" GB	-		-		-		-	
4 1/2" BULLET	-		-		-		-	
EIA 6 1/8" GP	-		-		-		-	
EIA 6 1/8" GB	-		-		-		-	
6 1/8" BULLET	-		-		-		-	
SPLICE	738204		738231		738305		738383	
END TERM	-		738232		738306		-	
ACCESSORIES	1/2" AIR		7/8" AIR		1 5/8" AIR		2 1/4" AIR	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STD HGR KIT	920981-010		920981-007		920981-003		920981-001	
INSU HGR KIT	920150-001		920150-002		920161-003		921151	
HDWE KIT	915006		915006		915006		915006	
RND ADP KIT	514542-00X		514542-00X		514542-00X		514542-00X	
ANG ADP KIT	915255		915255		915255		915255	
AA (IN HR) KIT	915255		915255		920160		920160	
CEIL ADP KIT	514608-003		514608-003		514608-003		514608-003	
HOIST GRIP	910303		910307		910311		914988	
W/R FD THRU	920432-002		920433		920434		921132	
GROUND KIT	915870-003		915870-005		915870-008		915870-012	
WTHRPF KIT	916132		916132		916132		916132	

# transmission lines & accessories

## Air Dielectric Coax

### RFS Cablewave Air Coax (3" to 6 1/8")

AIR CABLE	3" AIR	3 1/2" AIR	4 1/8" AIR	5" AIR	6 1/8" AIR
	HCC300-50J	HCC312-50J	HF418-50J	HF5 Cu2y	HF618 Cu2y
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STD CABLE	810905-001	810915-001	810944-008	HF5	HF618
LOW VSWR	810905-004	810915-004	-	-	-
CELL/PCS BND	810905-083	810915-083	-	-	-
FIRE RET JKT	810905-F01	810915-F01	-	-	-

CONNECTORS	3" AIR	3 1/2" AIR	4 1/8" AIR	5" AIR	6 1/8" AIR
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
N-MALE STD	-	-	-	-	-
N-MALE SG	-	-	-	-	-
N-MALE TUN	-	-	-	-	-
N-FEM STD	-	-	-	-	-
N-FEM SG	-	-	-	-	-
N-FEM TUN	-	-	-	-	-
EIA 7/8" GP	-	-	-	-	-
EIA 7/8" GP TUN	-	-	-	-	-
EIA 7/8" GB	-	-	-	-	-
EIA 7/8" GB TUN	-	-	-	-	-
EIA 1 5/8" GP	-	-	-	-	-
EIA 1 5/8" GB	-	-	-	-	-
EIA 3 1/8" GP	738355	734579	-	-	-
EIA 3 1/8" GB	738350	734578	15461901X	15467801X	15470702X
3 1/8" BULLET	-	-	15859201X	15859201X	15859201X
IEC 4 1/2" GB	-	-	15462001X	15467901X	15470801X
4 1/2" BULLET	-	-	15859301X	15859301X	15859301X
EIA 6 1/8" GP	-	-	734646	-	-
EIA 6 1/8" GB	-	-	734645	15468002X	15470902X
6 1/8" BULLET	-	-	-	15859401X	15859401X
SPLICE	738352	734574	-	-	-
END TERM	-	-	-	-	-
CONN SEAL	-	-	15800403X	15800403X	15800403X

ACCESSORIES	3" AIR	3 1/2" AIR	4 1/8" AIR	5" AIR	6 1/8" AIR
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	920159-004	920159-005	920159-006	-	-
INSU HGR KIT	920161-002	920161-007	920161-008	-	-
HDWE KIT	915006	915006	-	-	-
RND ADP KIT	514542-00X	514542-00X	514542-00X	15468906X	15473406X
ANG ADP KIT	915255	915255	920160	15468901X	15473401X
AA (IN HR) KIT	920160	920160	920160	-	-
CEIL ADP KIT	514608-003	514608-003	514608-006	-	-
HOIST GRIP	913563	913563	913864	15469301X	15473801X
W/R FD THRU	920435	920572	920555	15469201X	15473701X
GROUND KIT	915870-009	15870-010	915870-011	15469102X	15473602X
WTHRPF KIT	916132	916132	916132	-	-



# transmission lines & accessories

## Rigid Coax

### Andrew Rigid Coax (7/8" to 3 1/8")

RIGID LINE	7/8" RIGID		1 5/8" RIGID		3 1/8" RIGID	
	50 OHM		50 OHM		50 OHM	
DESCRIPTION	PART NO.		PART NO.		PART NO.	
TWO FLANGES	-		561		STD350-1	
ONE FLANGE	-		561-11		STD350-39	
NO FLANGES	-		561-21		STD350-31	
FITTINGS	7/8" RIGID		1 5/8" RIGID		3 1/8" RIGID	
DESCRIPTION	PART NO.		PART NO.		PART NO.	
ELB 90, 2 FLG, 1B	1060A		ACX150-10SE		ACX350-10SE	
ELB 45, 2 FLG, 1B	-		-		1162	
ELB 90, NO FLG	-		ACX150-10SE-3		ACX350-10SE-3	
ADP EIA TO NF	2260B		2261A		2262	
ADP EIA TO LCF	2360A		2361A		-	
ADP EIA TO DINF	-		-		-	
ADP EIA TO EIA	-		30452		23187	
P RED 1 5/8", 7/8"	1860A		1860A		-	
P RED 3 1/8", 1 5/8"	-		1861		1861	
STP RE 6 1/8", 3 1/8"	-		-		-	
END TERMINAL	-		2061		2062	
STD BULLET	34389A		34660		ACX350-20	
PREM BULLET	-		-		-	
UNFL STR CPLG	-		4861A		-	
FLEX SECTION	-		20695		19209C	
GAS BARRIER	1260A		1261B		RLA350-16	
FIXED FLANGE	18630		18631		15840	
S SOL SW FLG	1560A		1561A		ACX350-37	
SWIVEL FLANGE	18096		18041		18200	
EIA FLG BOLT KIT	66748-6		69225-2		69226-2	
EIA O-RING	10683-197		10683-406		10683-405	
PAT P 3 POLE	-		CP235		CP335	
PAT P 4 POLE	-		CP245		CP345	
FM DIRECT CPLR	-		CD203		CD303	
FM LOW PASS FILT	-		CFH211-OFM		CFH312-OFM	
ACCESSORIES	7/8" RIGID		1 5/8" RIGID		3 1/8" RIGID	
DESCRIPTION	PART NO.		PART NO.		PART NO.	
SIN FIXED HGR	-		13924		13927	
SIN SPRING HGR	-		14379		RLA300-11-H	
3-POINT SUSP HGR	-		-		RLA300-12	
LATERAL BRACE	-		-		RLA300-14	
HORIZ L SUPPORT	-		14378		RLA300-22	
W/R FEED THRU	-		-		RLA300-15	
W/PROOF KIT	221213		221213		221213	
DEHYD, 0.05 SCFM	MT050-81015		MT050-81015		MT050-81015	
DEHYD, 0.30 SCFM	MT300-81015		MT300-81015		MT300-81015	

# transmission lines & accessories

## Rigid Coax

### Andrew Rigid Coax (4 1/16" to 6 1/8")

RIGID LINE	4 1/16" RIGID 50 OHM		6 1/8" RIGID 50 OHM	
DESCRIPTION	PART NO.		PART NO.	
TWO FLANGES	-		STD650B-1	
ONE FLANGE	-		STD650B-39	
NO FLANGES	-		STD650B-31	
FITTINGS	4 1/16" RIGID		6 1/8" RIGID	
DESCRIPTION	PART NO.		PART NO.	
ELBOW 90, 2 FLANGES, 1B	-		ACX650B-10SE	
ELBOW 45, 2 FLANGES, 1B	-		-	
ELBOW 90, NO FLANGE	-		-	
ADAPTER EIA TO NF	-		-	
ADAPTER EIA TO LCF	-		-	
ADAPTER EIA TO DINF	-		-	
ADAPTER EIA TO EIA	-		31472	
PLATE RED 1 5/8", 7/8"	-		-	
PLATE RED 3 1/8", 1 5/8"	-		-	
STP RED 6 1/8", 3 1/8"	-		RLA650B-350	
END TERMINAL	-		RLA650-80	
STANDARD BULLET	241252		ACX650-20	
PREMIUM BULLET	-		-	
UNFL STR CPLG	-		-	
FLEXIBLE SECTION	-		-	
GAS BARRIER	-		RLA650-16	
FIXED FLANGE	-		RLA600B-28-SW	
SOFT SOLDER SWIVEL FLANGE	-		RLA600B-37-SW	
SWIVEL FLANGE	-		RLA600B-27-SW	
EIA FLANGE BOLT KIT	-		RLA600-21	
EIA O-RING	-		10683-10	
PATCH PANEL 3 POLE	CP435		CP635	
PATCH PANEL 4 POLE	CP445		CP645	
FM DIRECTIONAL COUPLER	-		CD605	
FM LOW PASS FILTER	-		-	
ACCESSORIES	4 1/16" RIGID		6 1/8" RIGID	
DESCRIPTION	PART NO.		PART NO.	
SINGLE FIXED HANGER	-		RLA600B-13-SW	
SINGLE SPRING HANGER	-		RLA600-11-H	
3-POINT SUSPENSION HANGER	-		RLA600-12	
LATERAL BRACE	-		RLA600-14	
HORIZONTAL SUPPORT	-		-	
WALL/ROOF FEED THRU	-		RLA600-15	
WEATHERPROOF KIT	-		221213	
DEHYD, 0.05 SCFM	-		MT050-81015	
DEHYD, 0.30 SCFM	-		MT300-81015	

# transmission lines & accessories

## Rigid Coax

### RFS Cablewave Coax (7/8" to 3 1/8")

RIGID LINE	7/8" RIGID	1 5/8" RIGID	3 1/8" RIGID
	X-78-50	X-158-50	X-318-50
DESCRIPTION	PART NO.	PART NO.	PART NO.
TWO FLANGES	920213	920214	920215
ONE FLANGE	920217	920218	920219
NO FLANGES	920221	920222	920223
FITTINGS	7/8" RIGID	1 5/8" RIGID	3 1/8" RIGID
DESCRIPTION	PART NO.	PART NO.	PART NO.
ELB 90, 2 FLG, 1B	920225	920226	920227
ELB 45, 2 FLG, 1B	920229	920230	920231
ELB 90, NO FLANGE	920291	920292	920293
ADP, EIA TO NF	920241	920242	920243
ADP, EIA TO EIA	920256	920257	920258
P RED 1 5/8", 7/8"	920247	920247	-
P RED 3 1/8", 1 5/8"	-	920248	920248
T RED 1 5/8", 7/8"	920249	920249	-
T RED 3 1/8", 1 5/8"	-	920250	920250
T RED 4 1/16", 3 1/8"	-	-	926217
T RED 6 1/8", 3 1/8"	-	-	920251
T RED 6 1/8", 4 1/16"	-	-	-
T RED 9 3/16", 6 1/8"	-	-	-
END TERMINAL	920252	920253	920254
STANDARD BULLET	612951	612874	622720
UNFL STR CPLG	920295	920296	920297
FLEX SECTION	-	920260	920261
BREAKAWAY SECTION	-	920263	920264
GAS BARRIER	920237	920238	920239
FIXED FLANGE	920287	920288	920289
SWIVEL FLANGE	920283	920284	920285
PRESS FIELD FLANGE	920325	920326	920327
UNPRESS FIELD FLANGE	920303	920304	920305
EIA FLG BOLT KIT	920272	920273	920274
EIA O-RING	520681-010	520681-011	520681-012
ACCESSORIES	7/8" RIGID	1 5/8" RIGID	3 1/8" RIGID
DESCRIPTION	PART NO.	PART NO.	PART NO.
SINGLE FIXED HANGER	920307	920308	920309
DUAL FIXED HANGER	-	-	926018
SINGLE SPRING HANGER	-	920311	920312
DUAL SPRING HANGER	-	-	926017
3-POINT SUSPENSION HANGER	-	-	926081
LATERAL BRACE	-	920316	920317
HORIZONTAL SUPPORT	-	920319	920320
WALL/ROOF FEED THRU	920321	920322	920323
WEATHERPROOF KIT	916132	916132	916132
DEHYDRATOR APD20	920635	920635	920635
DEHYDRATOR APD70	940019	940019	940019

# transmission lines & accessories

## Rigid Coax

### RFS Cablewave Coax (4 1/16" to 6 1/8")

RIGID LINE		4 1/16" RIGID X-416-50		6 1/8" RIGID X-618-50	
DESCRIPTION		PART NO.		PART NO.	
TWO FLANGES		926201		920216	
ONE FLANGE		926202		920220	
NO FLANGES		926203		920224	
FITTINGS		4 1/16" RIGID		6 1/8" RIGID	
DESCRIPTION		PART NO.		PART NO.	
ELBOW 90, 2 FLANGES, 1B		926207		920228	
ELBOW 45, 2 FLANGES, 1B		926208		920232	
ELBOW 90, NO FLANGE		926219		920294	
ADAPTER, EIA TO NF		-		-	
ADAPTER, EIA TO EIA		926218		920259	
PLATE RED 1 5/8", 7/8"		-		-	
PLATE RED 3 1/8", 1 5/8"		-		-	
T RED 1 5/8", 7/8"		-		-	
T RED 3 1/8", 1 5/8"		-		-	
T RED 4 1/16", 3 1/8"		926217		-	
T RED 6 1/8", 3 1/8"		-		920251	
T RED 6 1/8", 4 1/16"		926368		926368	
T RED 9 3/16", 6 1/8"		-		926257	
END TERMINAL		926232		920255	
STANDARD BULLET		926213		920270	
UNFL STR CPLG		926216		920298	
FLEX SECTION		-		920262	
BREAKAWAY SECTION		-		920265	
GAS BARRIER		926210		920240	
FIXED FLANGE		926214		920290	
SWIVEL FLANGE		926231		920286	
PRESS FIELD FLANGE		926369		926016	
UNPRESS FIELD FLANGE		926212		920306	
EIA FLANGE BOLT KIT		926222		920275	
EIA O-RING		520681-146		920279	
ACCESSORIES		4 1/16" RIGID		6 1/8" RIGID	
DESCRIPTION		PART NO.		PART NO.	
SINGLE FIXED HANGER	926223	\$65.00		\$101.00	
DUAL FIXED HANGER		-		-	
SINGLE SPRING HANGER		926225		920313	
DUAL SPRING HANGER		-		-	
3-POINT SUSPENSION HANGER		926371		926082	
LATERAL BRACE		926227		920318	
HORIZONTAL SUPPORT	926224	O/A		O/A	
WALL/ROOF FEED THRU		926236		920324	
WEATHERPROOF KIT		916132		916132	
DEHYD APD20		920635		920635	
DEHYD APD70		940019		940019	

# transmission lines & accessories

## Elliptical Waveguide

### Andrew Elliptical Waveguide (EW17 to EW34)

ELLIP W/G	E17 1.7-2.3 GHz		EW20 2.1-2.7 GHz		EW28 2.9-3.4 GHz		EW34 3.1-4.2 GHz	
DESCRIPTION	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE
STANDARD	EW17		EW20		EW28		EW34	
PREMIUM	EWP17		EWP20		EWP28		EWP34	
SUPER PREM	EWP17S		EWP20S		EWP28S		EWP34S	

CONNECTORS	EW17		EW20		EW28		EW34	
DESCRIPTION	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE
CPR430G STD	117E		-		-		-	
CPR430G TUN	117ET		-		-		-	
CPR340G STD	-		120E		-		-	
CPR340G TUN	-		-		-		-	
7/8 EIA GP	117RT-3		E20MP-014		-		-	
7/8 EIA GB	117RT		E20MB-014		-		-	
CPR284G STD	-		-		128AE		-	
CPR284G TUN	-		-		-		-	
CPR229G STD	-		-		-		134DE	
CPR229G TUN	-		-		-		134DET	
CPR229G PT	-		-		-		134DEP-X	
UG149 STD	-		-		-		-	
UG149 TUN	-		-		-		-	
CPR187G STD	-		-		-		-	
CPR187G TUN	-		-		-		-	
CPR187G PT	-		-		-		-	
CPR159G STD	-		-		-		-	
CPR159G TUN	-		-		-		-	
CPR159G FT	-		-		-		-	
CPR137G STD	-		-		-		-	
CPR137G TUN	-		-		-		-	
CPR137G FT	-		-		-		-	
UG344 STD	-		-		-		-	
UG344 TUN	-		-		-		-	
SPLICE	117Z		120Z		128AZ		134DZ	

ACCESSORIES	EW17		EW20		EW28		EW34	
DESCRIPTION	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE
STD HGR KIT	31766A-9		31766A-10		31766A-11		42396A-15	
HDWE KIT	31769-1		31769-1		31769-1		31769-1	
RND ADP KIT	31670-X		31670-X		31670-X		31670-X	
ANG ADP KIT	31768A		31768A		31768A		31768A	
CEIL ADP KIT	31771		31771		31771		31771	
HOIST GRIP	34759		34759		26985A		26985A	
W/R FD THRU	35849A-10		35849A-10		35849A-13		35849A-17	
GROUND KIT	204989-6		204989-6		241088-5		241088-5	
WTHRPF KIT	221213		221213		221213		221213	

# transmission lines & accessories

## Elliptical Waveguide

### Andrew Elliptical Waveguide (EW37 to EW63)

ELLIP W/G	EW37		EW43		EW52		EW63	
	3.4-4.2 GHz		4.4-5.0 GHz		5.6-6.4 GHz		5.8-7.1 GHz	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STANDARD	EW37		EW43		EW52		EW63	
PREMIUM	EWP37		EWP43		EWP52		EWP63	
SUPER PREM	EWP37S		EWP43S		EWP52S		EWP63S	

CONNECTORS	EW37		EW43		EW52		EW63	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
7/8 EIA GP	-		-		-		-	
7/8 EIA GB	-		-		-		-	
CPR284G STD	-		-		-		-	
CPR284G TUN	-		-		-		-	
CPR229G STD	137DE		-		-		-	
CPR229G TUN	137DET		-		-		-	
CPR229G PT	137DEP-X		-		-		-	
UG149 STD	-		-		-		-	
UG149 TUN	-		143DCT		-		-	
CPR187G STD	-		-		-		-	
CPR187G TUN	-		143DET		-		-	
CPR187G PT	-		143SE		-		-	
CPR159G STD	-		-		152DE		-	
CPR159G TUN	-		-		152DET		-	
CPR159G FT	-		-		152SE		-	
CPR137G STD	-		-		252DE		163DE	
CPR137G TUN	-		-		252DET		163DET	
CPR137G FT	-		-		252SE		163SE	
UG344 STD	-		-		252DC		163DC	
UG344 TUN	-		-		252DCT		163DCT	
UG344 FT	-		-		-		-	
CPR112G STD	-		-		-		-	
CPR112G TUN	-		-		-		-	
CPR112G FT	-		-		-		-	
SPLICE	137DZ		143DZ		152DZ		163DZ	

ACCESSORIES	EW37		EW43		EW52		EW63	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STD HGR KIT	42396A-4		42396A-16		42396A-8		42396A-7	
HDWE KIT	31769-1		31769-1		31769-1		31769-1	
RND ADP KIT	31670-X		31670-X		31670-X		31670-X	
ANG ADP KIT	31768A		31768A		31768A		31768A	
CEIL ADP KIT	31771		31771		31771		31771	
HOIST GRIP	31535		31535		24312A		24312A	
W/R FD THRU	245314-37		245314-43		245314-52		245314-63	
GROUND KIT	241088-5		204989-10		241088-4		241088-4	
WTHRPF KIT	221213		221213		221213		221213	

# transmission lines & accessories

## Elliptical Waveguide

### Andrew Elliptical Waveguide (EW64 to EW90)

ELLIPTICAL	EW64		EW77		EW85		EW90	
	6.4-7.7 GHz		7.1-8.5 GHz		8.5-9.8 GHz		10.2-11.7 GHz	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STANDARD	EW64		EW77		EW85		EW90	
PREMIUM	EW64		EW77		EW85		EW90	
SUPER PREM	EW64S		EW77S		EW85S		EW90S	

CONNECTORS	EW64		EW77		EW85		EW90	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
CPR137G STD	164DE		-		-		-	
CPR137G TUN	164DET		-		-		-	
CPR137G FT	164SE		-		-		-	
UG344 STD	164DC		-		-		-	
UG344 TUN	164DCT		-		-		-	
UG344 FT	164SC		-		-		-	
UG51 STD	-		177DC		-		-	
UG51 TUN	-		177DCT		-		-	
UG51 FT	-		<b>\$295.00</b>		-		-	
CPR112G STD	264DE		177DE		-		-	
CPR112G TUN	264DET		177DET		-		-	
CPR112G FT	264SE		177SE		-		-	
UG39 STD	-		-		185BC		-	
CPR90G STD	-		-		-		190DE	
CPR90G TUN	-		-		-		190DET	
CPR90G FT	-		-		-		190SE	
WR75CH STD	-		-		-		-	
WR75CH TUN	-		-		-		-	
WR75CH FT	-		-		-		290SC	
WR75CN STD	-		-		-		-	
WR75CN TUN	-		-		-		-	
UG541STD	-		-		-		-	
UG541TUN	-		-		-		-	
UG541 FT	-		-		-		-	
PBR140 STD	-		-		-		-	
PBR140 TUN	-		-		-		-	
PBR140 FT	-		-		-		-	
UG595 STD	-		-		-		-	
UG595 TUN	-		-		-		-	
UG595 FT	-		-		-		-	
PBR220 STD	-		-		-		-	
PBR220 TUN	-		-		-		-	
PBR220 FT	-		-		-		-	
SPLICE	164DZ		177DZ		185AZ		190DZ	

ACCESSORIES	EW64		EW77		EW85		EW90	
DESCRIPTION	PART NO.		PART NO.		PART NO.		PART NO.	
STD HGR KIT	42396A-1		42396A-11		42396A-5		42396A-5	
HDWE KIT	31769-1		31769-1		31769-1		31769-1	
RND ADP KIT	31670-X		31670-X		31670-X		31670-X	
ANG ADP KIT	31768A		31768A		31768A		31768A	
CEIL ADP KIT	31771		31771		31771		31771	
HOIST GRIP	29961		19256B		29958		29958	
W/R FD THRU	245314-64		245314-77		245314-85		245314-90	
GROUND KIT	241088-3		241088-3		241088-2		241088-2	
WTHRP KIT	221213		221213		221213		221213	



# transmission lines & accessories

## Elliptical Waveguide

### Andrew Elliptical Waveguide (EW127A to EW240)

ELLIPTICAL	EW127A	EW132	EW180	EW220	EW240
	11.7-13.2 GHz	14.0-15.3 GHz	17.7-19.7 GHz	21.2-23.6 GHz	24.0-26.5 GHz
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STANDARD	EW127A	EW132	EW180	EW220	EW240
PREMIUM	EW127A	EW132	EW180	EW220	EW240
SUPER PREM	EW127AS	EW132S	EW180S	EW220S	EW240S

CONNECTORS	EW127A	EW132	EW180	EW220	EW240
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
CPR112G STD	-	-	-	-	-
CPR112G TUN	-	-	-	-	-
CPR112G FT	-	-	-	-	-
UG39 STD	-	-	-	-	-
CPR90G STD	-	-	-	-	-
CPR90G TUN	-	-	-	-	-
CPR90G FT	-	-	-	-	-
WR75CH STD	1127DC	2132DC	-	-	-
WR75CH TUN	1127DCT	2132DCT	-	-	-
WR75CH FT	1127SC	-	-	-	-
WR75CN STD	1127DK	2132DK	-	-	-
WR75CN TUN	1127DKT	2132DKT	-	-	-
UG541STD	-	1132DC	-	-	-
UG541TUN	-	1132DCT	-	-	-
UG541 FT	-	1132SC	-	-	-
PBR140 STD	-	1132DCM	-	-	-
PBR140 TUN	-	1132DCMT	-	-	-
PBR140 FT	-	1132SCM	-	-	-
UG595 STD	-	-	-	-	-
UG595 TUN	-	-	1180DCT	-	-
UG595 FT	-	-	1180SC	1220ASC	-
PBR220 STD	-	-	-	-	-
PBR220 TUN	-	-	1180DCMT	-	-
PBR220 FT	-	-	1180SCM	1220ASCM	1240SCM
SPLICE	1127DZ	1132DZ	1180DZ	1220DZ	1240DZ

ACCESSORIES	EW127A	EW132	EW180	EW220	EW240
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	42396A-9	42396A-9	43211A	43211A	43211A
HDWE KIT	31769-1	31769-1	31769-1	31769-1	31769-1
RND ADP KIT	31670-X	31670-X	31670-X	31670-X	31670-X
ANG ADP KIT	31768A	31768A	31768A	31768A	31768A
CEIL ADP KIT	31771	31771	31771	31771	31771
HOIST GRIP	29958	29958	43094	43094	43094
W/R FD THRU	245314-127A	245314-132	245314-180	245314-220	245314-240
GROUND KIT	241088-2	241088-2	241088-1	241088-1	223158
WTHRP KIT	221213	221213	221213	221213	221213

# transmission lines & accessories

## Elliptical Waveguide

### RFS Cablewave Elliptical Waveguide (WE30 to WE65)

ELLIPTICAL	WE30	WE37	S-WE46	WE61	WE65
	2.1-2.7 GHz	3.6-4.2 GHz	4.4-5.0 GHz	5.6-6.4 GHz	5.9-7.1 GHz
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STANDARD	810271-001	810250-001	810266-001	810265-001	810261-001
PREMIUM	810271-002	810250-002	810266-002	810265-002	810261-002
FIRE RET JKT	810271-007	810250-007	810266-007	810265-007	810261-007

CONNECTORS	WE30	WE37	S-WE46	WE61	WE65
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
7/8 EIA GP	399472	-	-	-	-
7/8 EIA GB	399457	-	-	-	-
CPR229G STD	-	399318-103	-	-	-
CPR229G TUN	-	399318-101	-	-	-
UG148/9 STD	-	-	399377-103	-	-
UG148/9 TUN	-	-	399377-101	-	-
CPR187G STD	-	-	399365-103	-	-
CPR187G TUN	-	-	399365-101	-	-
CPR159G STD	-	-	-	399268-103	-
CPR159G TUN	-	-	-	399268-101	-
CPR137G STD	-	-	-	399269-103	399289-103
CPR137G TUN	-	-	-	399269-101	399289-101
UG343/4 STD	-	-	-	399479-103	399288-103
UG343/4 TUN	-	-	-	399479-101	399288-101
UG51/2B STD	-	-	-	-	-
UG51/2B TUN	-	-	-	-	-
CPR112G STD	-	-	-	-	-
CPR112G TUN	-	-	-	-	-
CPR90G STD	-	-	-	-	-
CPR90G TUN	-	-	-	-	-
WR75CH STD	-	-	-	-	-
WR75CH TUN	-	-	-	-	-
WR75CN STD	-	-	-	-	-
WR75CN TUN	-	-	-	-	-
SPLICE	399469	395490	399375	399267	399290

ACCESSORIES	WE30	WE37	S-WE46	WE61	WE65
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	920981-011	920981-001	920904	920981-003	920981-004
HDWE KIT915006	<b>\$13.50</b>	<b>\$13.50</b>	<b>\$13.50</b>	<b>\$13.50</b>	<b>\$13.50</b>
RND ADP KIT	514542-00X	514542-00X	514542-00X	514542-00X	514542-00X
ANG ADP KIT	915255	915255	915255	915255	915255
CEIL ADP KIT	514608-003	514608-003	514608-003	514608-003	514608-003
HOIST GRIP	913503	914988	910311	910311	910311
W/R FD THRU	921095	920372	920903	920831	920738
GROUND KIT	915870-010	921182-001	921182-002	921182-003	921182-004
WTHRPF KIT	916132	916132	916132	916132	916132

# transmission lines & accessories

## Elliptical Waveguide

### RFS Cablewave Elliptical Waveguide (WE78 to WE191)

ELLIPTICAL	WE78	WE108	WE130	WE150	WE191
	7.1-8.5 GHz	10.5-11.7 GHz	10.9-13.2 GHz	13.4-15.3 GHz	17.7-19.7 GHz
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STANDARD	810262-001	810264-001	810258-001	810273-001	810268-001
PREMIUM	810262-002	810264-002	810258-002	810273-002	810268-002
FIRE RET JKT	810262-007	810264-007	810258-007	810273-007	810268-007

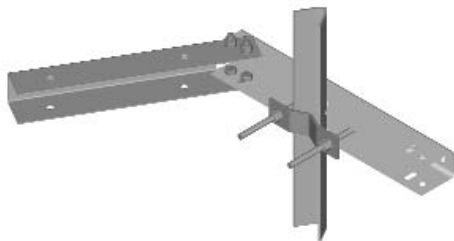
CONNECTORS	WE78	WE108	WE130	WE150	WE191
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
CPR159G STD	-	-	-	-	-
CPR159G TUN	-	-	-	-	-
CPR137G STD	399343-103	-	-	-	-
CPR137G TUN	399343-101	-	-	-	-
UG343/4 STD	399344-103	-	-	-	-
UG343/4 TUN	399344-101	-	-	-	-
UG51/2B STD	399299-103	-	-	-	-
UG51/2B TUN	399299-101	-	-	-	-
CPR112G STD	399298-103	-	-	-	-
CPR112G TUN	399298-101	-	-	-	-
CPR90G STD	-	399331-103	-	-	-
CPR90G TUN	-	399331-101	-	-	-
WR75CH STD	-	-	399347-103	399417-103	-
WR75CH TUN	-	-	399347-101	399417-101	-
WR75CN STD	-	-	-	399414-103	-
WR75CN TUN	-	-	-	399414-101	-
PDR140 STD	-	-	-	399418-103	-
PDR140 TUN	-	-	-	399418-101	-
UG491/541STD	-	-	-	399411-103	-
UG491/541TUN	-	-	-	399411-101	-
PBR140 STD	-	-	-	399415-103	-
PBR140 TUN	-	-	-	399415-101	-
UG595/6 STD	-	-	-	-	399422-103
UG595/6 TUN	-	-	-	-	399422-101
SPLICE	399300	399332	399388	399442	399421

ACCESSORIES	WE78	WE108	WE130	WE150	WE191
DESCRIPTION	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
STD HGR KIT	920981-006	920981-007	920981-008	920981-009	920981-010
INSU HGR KIT	-	-	-	-	-
HDWE KIT	915006	915006	915006	915006	915006
RND ADP KIT	514542-00X	514542-00X	514542-00X	514542-00X	14542-00X
ANG ADP KIT	915255	915255	915255	915255	915255
CEIL ADP KIT	514608-003	514608-003	514608-003	514608-003	514608-003
HOIST GRIP	910311	910307	910307	910307	910307
W/R FD THRU	920858	920745	920380	921039	920726
GROUND KIT	921182-005	921182-006	921182-007	921182-010	921182-008
WTHRPF KIT	916132	916132	916132	916132	916132

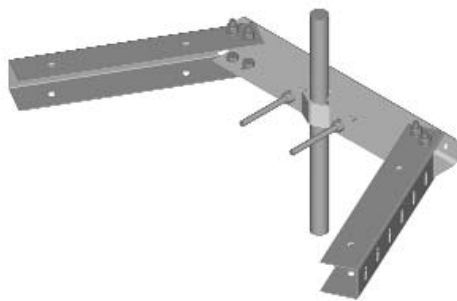
## Tx-Line Support

### Wing Tx-Line Support Bracket

The Wing Tx-Line Support Bracket is a very versatile solution for the mounting of initial or future application transmission lines. The single or double adjustable wings of the bracket allow the lines to run close to the tower face while keeping the leg clear. Each bracket features a keyhole design to suit both snap-in and butterfly-type hangers. The bracket's leg clamp design allows it to be connected to round, 60° and 90° angle leg members. This bracket is available in a light and a heavy version. The light version supports 12 runs on the wings and an additional four on the leg bracket. The heavy version supports 12 runs on the wings and an additional six on the leg bracket, and is capable of expanding to 30 lines with the addition of the optional expansion brackets. All components are hot-dip galvanized to ensure maximum corrosion protection.



Single-Wing Bracket



Double-Wing Bracket

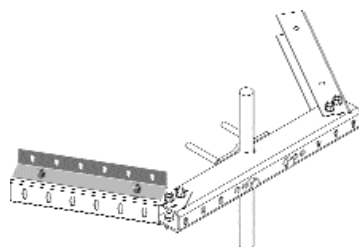
Kit #	Description	Qty	Wt #
<b>Light Version</b>			
STX005-1L	16 Tx-line dbl rnd leg 1 1/2" to 4 1/2" 60° legs 2 1/2" to 4" 90° legs 2" to 3"	each	20
STX005-1LS	10 Tx-line single rnd leg 1 1/2" to 4 1/2" 60° legs 2 1/2" to 4" 90° legs 2" to 3"	each	14
STX005-2L	16 Tx-line dbl rnd leg 4 5/8" to 6" 60° legs 5" to 6" 90° legs 3" to 4"	each	21
STX005-2LS	10 Tx-line single rnd leg 4 5/8" to 6" 60° legs 5" to 6" 90° legs 3" to 4"	each	15
STX005-3L	16 Tx-line dbl rnd leg 6 1/8" to 7 1/2" 60° legs 8" 90° legs 4" to 5"	each	22
STX005-3LS	10 Tx-line single rnd leg 6 1/8" to 7 1/2" 60° legs 8" 90° legs 4" to 5"	each	16
<b>Heavy Version</b>			
STX005-1H	18 Tx-line dbl rnd leg 1 1/2" to 4 1/2" 60° legs 2 1/2" to 4" 90° legs 2" to 3"	each	31
STX005-1HS	12 Tx-line single rnd leg 1 1/2" to 4 1/2" 60° legs 2 1/2" to 4" 90° legs 2" to 3"	each	25
STX005-2H	18 Tx-line dbl rnd leg 4 5/8" to 6" 60° legs 5" to 6" 90° legs 3" to 4"	each	32
STX005-2HS	12 Tx-line single rnd leg 4 5/8" to 6" 60° legs 5" to 6" 90° legs 3" to 4"	each	26
STX005-3H	18 Tx-line dbl rnd leg 6 1/8" to 7 1/2" 60° legs 8" 90° legs 4" to 5"	each	33
STX005-3HS	12 Tx-line single rnd leg 6 1/8" to 7 1/2" 60° legs 8" 90° legs 4" to 5"	each	27

# transmission lines & accessories

## Tx-Line Support

### Wing Tx-Line Expansion Bracket

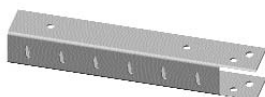
The Wing Tx-Line Expansion Bracket gives you the ability to increase the bracket's line capacity to a maximum of 30 runs. The bracket features a keyhole design to suit both snap-in and butterfly-type hangers. Each bracket can support six runs and is to be mounted to the Heavy Version of the Wing Tx-Line Bracket only. All hardware is included. Parts are hot-dip galvanized to provide maximum corrosion protection.



Kit #	Description	Qty	Wt #
STX005-4	wing Tx-line bracket 6-line expansion bracket	each	3

### Wing Tx-Line Bracket

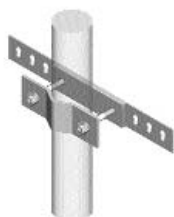
The Additional Wing Tx-Line Bracket Kit comes complete with hardware and gives you the ability to expand your existing Single-Wing Bracket assembly without having to purchase new supports. Each bracket can support six runs and features a keyhole design to suit both snap-in and butterfly-type hangers. All parts are hot-dip galvanized to provide maximum corrosion protection.



Kit #	Description	Qty	Wt #
STX005-5	wing Tx-line bracket 6-line expansion	each	5

### Round Leg Tx-Line Support Bar

The Round Leg Tx-Line Support Bar is capable of mounting to round members from 1 1/4" (32 mm) to 3" (76 mm) in diameter. Each bar can support a maximum of six runs of transmission line and features a keyhole design to suit both snap-in and butterfly-type hangers. All parts are hot-dip galvanized to provide maximum corrosion protection.



Kit #	Description	Qty	Wt #
STX006-1	round leg 6-line support bar 1 1/4" to 3" dia. legs	each	4

## Tx-Line Support

### Tx-Line Support Ladder Kit

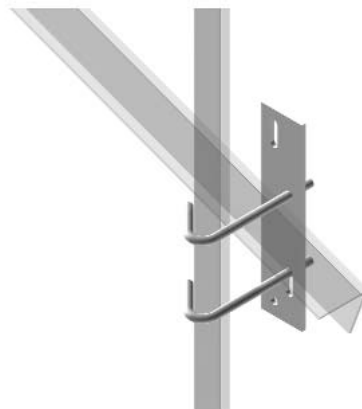
Tx-Line Support Ladders provide sturdy support for multiple runs of transmission lines along the vertical face of a tower. Each kit includes two rails, rungs, splice kit, Tx-Line Support Ladder Clamp Kit, and all appropriate installation hardware. Depending on the kit you choose, the ladder will be 10' or 20' in length. The 14" rungs are capable of accommodating 11 transmission lines, and the 20" rungs are capable of accommodating 15 transmission lines. Any additional installation hardware needed for member attachments must be purchased separately. All steel material is hot-dip galvanized to ensure maximum corrosion protection.



Kit #	Description	Qty	Wt #
STX007-1	11-run Tx-line 20' support ladder kit	each	<b>136</b>
STX007-2	15-run Tx-line 20' support ladder kit	each	<b>136</b>
STX007-3	11-run Tx-line 10' support ladder kit	each	<b>77</b>
STX007-4	15-run Tx-line 10' support ladder kit	each	<b>77</b>

### Attachment Clamp Kit For Tx-Line Support Ladder

The Clamp Kit for the Tx-line Support Ladder can accommodate both angle and round members in the 2" to 6" range. This kit is used for applications where more than four attachment clamp kits (provided in the above Tx-Line Ladder Kit) are required.



Kit #	Description	Qty	Wt #
STX007-5	Tx-line support ladder clamp kit	each	<b>4</b>

# transmission lines & accessories

## Entry Port Boots

### Entry Port Boots

Radian Entry Port Boots are designed to fit standard 4" and 5" transmission line building entry port systems. The boots cover most common transmission line sizes and many multiple-line configurations. The innovative one-piece design and soft rubber material make the boot easy to install and improve the sealing characteristics.



**Coax Cable Entry Port Boots**



**Elliptical Waveguide Cable Entry Port Boots**

### Description 4" Boot

#### Coax Cable Entry Port Boots

Blank	130004
1/4" sflx - 1 hole	130006
1/2" sflx - 1 hole	131079
3/8" coax - 1 hole	130007
1/2" coax - 1 hole	130005
7/8" coax - 1 hole	130008
1 1/4" coax - 1 hole	130009
1 5/8" coax - 1 hole	130010
2 1/4" coax - 1 hole	131080
3" coax - 1 hole	130011
3 1/2" coax - 1 hole	-
4" coax - 1 hole	-
1/4" sflx - 2 holes	131081
1/2" sflx - 2 holes	131082
3/8" coax - 2 holes	131083
1/2" coax - 2 holes	130012
7/8" coax - 2 holes	130013
1 1/4" coax - 2 holes	131084
1 5/8" coax - 2 holes	-
1/4" sflx - 3 holes	130015
1/2" sflx - 3 holes	131085
3/8" coax - 3 holes	130016
1/2" coax - 3 holes	130014
7/8" coax - 3 holes	130017
1 1/4" coax - 3 holes	-
1 5/8" coax - 3 holes	-
1/4" sflx - 4 holes	131086
1/2" sflx - 4 holes	130970
3/8" coax - 4 holes	131087
1/2" coax - 4 holes	130055
7/8" coax - 4 holes	130961

#### Elliptical Waveguide Cable Entry Port Boots

WE30 - 1 hole	-
EW28 - 1 hole	-
EW34 - 1 hole	131098
EW37 - 1 hole	131099
EW43 - 1 hole	131100
WE37 - 1 hole	130382
WE46 - 1 hole	130384
WE61, EW52 - 1 hole	130386
WE65, EW63 - 1 hole	130388
EW64 - 1 hole	131101
WE78 - 1 hole	130392
EW77 - 1 hole	131102
EW85 - 1 hole	131103
WE108, EW90 - 1 hole	130394
WE130, EW127 - 1 hole	130396
WE150, EW132 - 1 hole	130398
WE191, EW180 - 1 hole	130400
E220, EW220 - 1 hole	130402
EW240 - 1 hole	131104

### 5" Boot

131416
130276
131088
130020
130019
130021
130022
130023
131089
130024
131090
131091
131092
131093
131094
130025
130026
130955
130979
130028
131095
130029
130027
130030
131096
131097
131264
131265
131266
131267
131268

130381
131105
131106
131107
131108
130383
130385
130387
130389
131109
130393
131110
131111
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130399
130401
130403
131112



## This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal grey lines across its entire width, providing a template for writing or drawing. The margins are consistent on all sides.

# analysis of existing towers, guyed masts and monopoles



The purpose of the analysis is to confirm that the structure will meet current design standards when changing or modifying antennas. Radian engineers will provide a complete analysis report sealed by a professional engineer. The report includes:

1. Tower profile
2. Leg loads and capacities diagram
3. Face shear and bracing capacities diagram
4. Foundations reactions
5. Guy forces when applicable

The report also includes recommendations on the reinforcing of the structure that may be required to bring it to current standards. In some cases, where the structure is extremely overloaded or the reinforcing is a major project, the customer will be informed, and the cost of designing the reinforcing may have to be quoted separately.

To ensure accuracy and quick turn-around of the analysis, Radian engineers request that you provide them with as much of the following information as available:

- 1. Tower Information** – If it is a Radian tower, identify the tower by the file number of the initial construction project (usually a nine-digit number starting with year, branch code, project number, sub number) or the tower ID, which is the tower drawing number (product ID, e.g., 33, and a three-digit number). If these numbers are unavailable, please provide as much information as possible about the tower: type, model, height, width, location, original customer, date purchased, etc. In some cases, the information on the tower may not be available, and a full measure-up of the tower may be required.
- 2. Existing Antennas and Lines** – Provide an inventory of the existing antennas by height of antenna on tower, manufacturer, model number, mounting type, dish azimuth and transmission line size. Future antennas that are required to be included in the analysis for reserved capacity must be provided in that list. Furthermore, information on how transmission lines are attached is an integral part of the analysis. Please do not rely on the accuracy of the engineering files to provide the current antennas on the tower.
- 3. Proposed Antennas and Lines** – Provide a list of the proposed antennas by height of antenna on tower, manufacturer, model number, mounting type, dish azimuth, and transmission line size. Also, provide information on how transmission lines are proposed to be attached to the structure.
- 4. Modifications to Existing Structure** – Provide a list of modifications that were introduced to the existing structure. If these modifications were performed by Radian, provide the engineering file under which these modifications were performed. Also, provide a list of the previous analyses that were performed on this tower. Providing this information can help to minimize costs.
- 5. Existing Foundations** – Provide information on the existing foundations and soil properties. If the tower foundations were designed by Radian, this information is available in our engineering files. Otherwise, provide this information with the analysis request. Currently, it is the requirement of standards that a soil investigation be performed if such information is not available.

## Analysis Pricing

The following table provides representative pricing for an engineering analysis. The fee includes the analysis of the structure and foundations. Analysis results and recommendations will be provided in a report sealed by a professional engineer. Any sealed drawings or calculations are available at additional cost.

# analysis of existing towers, guyed masts and monopoles



## Tower Analysis Pricing

SELF-SUPPORTING TOWERS		
From	To	Fee*
0'	150'	\$1,500
151'	250'	\$1,800
251'	350'	\$2,200
over	350'	quote

GUYED MASTS		
From	To	Fee*
0'	250'	\$1,600
251'	350'	\$1,800
351'	500'	\$2,000
501'	700'	\$2,500
701'	900'	\$3,000
over	900'	quote

MONOPOLES		
From	To	Fee*
0'	100'	\$1,200
101'	150'	\$1,300
151'	250'	\$1,700
over	250'	quote

Sealed drawings or calculations – price on request

Major reinforcing design work – price on request

\*Approximate fee excluding applicable taxes.

## Analysis Revisions

During the course of the analysis, the customer may need to revise the antenna list for a variety of different reasons. The cost of a revision to an analysis is \$950, and this includes the revision of the load and submission of revised loading. Note that the analysis revisions apply only to structures that are analyzed recently (within three months) for the same customer, and the revision represents a minor change in the antennas and/or transmission line loading.

## Submission of Information

In order to expedite the analysis, please forward a copy of the Tower Analysis form to [catalogsales@radiancorp.com](mailto:catalogsales@radiancorp.com). The form is available on the Radian Web site.



**Climbing Ladder:** This ladder complies with the industry standard requirements. Size and dimension of the ladder is designed for maximum comfort and safety.

**Climbing System:** A climbing system is implemented to allow access to all pertinent components of the tower structure: lighting, antennas and mounts, transmission lines, brackets, and structural members.

**Common Grades:** The following common grades are available for steel: 36,000, 44,000, and 50,000 lbs./sq.-in. Other lower and higher grades are available. Higher strength steels are used in "tall" structures. Chemical and mechanical properties of the steel are specified and tailor-made to suit the design conditions.

**Convergence:** The act of bringing the Internet to devices that previously couldn't access it. This could include the merging of the Internet with television, cellular phones or even kitchen appliances.

**Dampers:** In guyed structures, dampers are employed on the guy cables to control unwarranted high-frequency vibrations caused by the wind. The oscillations produced by the vibrations are of low amplitude and do not exceed the guy cable diameter. Relatively small devices are installed near both ends of guy terminations. Low-frequency dampers are similar in function to the high-frequency dampers. However, low-frequency dampers are used to control large vibration (galloping) of the guy cables. A large, weighted device is installed on the guy cable, but is allowed to move along the guy-line angle to suppress galloping action. The device is attached to a tether cable, which is anchored independently from the guy anchors.

**DAP:** The Dispatch Application Processor (DAP) is responsible for the overall coordination and control of dispatch communications. The (iDEN) Integrated Digital Enhanced Network system allows subscribers to travel freely throughout the coverage area and send or receive dispatch calls regardless of their current location. When a subscriber unit is turned on, its identification and location are automatically registered at the DAP and tracked until the unit is turned off. The DAP provides dynamic site allocation that intelligently illuminates only those sites that are required to complete dispatch calls, minimizing precious RF channel usage.

**DECT (Digital European Cordless Telecommunications):** A wireless, short-term transmission standard used in Europe, often for cordless telephones and, potentially, for Internet devices such as smart-home gateways.

**Demodulation:** The act of separating information from a carrier wave.

**Demodulator:** A device that separates information from a carrier wave.

**Directional Antenna:** An antenna that transmits in a single direction.

**DTV (Digital TV):** A technology through which TV broadcasters and receivers use digital technologies to offer a much higher resolution than is possible with standard analog TV, and which also allows for extra interactive features.

**EDGE (Enhanced Data for Global Evolution):** A technology that increases available time slots and data rates over existing wireless networks.

**EHF (Extremely High Frequency):** Electromagnetic waves between 30 and 300 GHz; used for satellite and radar transmissions.

**Electromagnetic Radiation:** Waves of energy of varying wavelengths and frequencies propagated through space.

**Electromagnetic Spectrum:** The entire range of wavelengths or frequencies of electromagnetic radiation.

**ELF (Extremely Low Frequency):** Electromagnetic waves below 3 kHz; used for submarine communications.

**Fall Arresting System:** This system includes both the cable and the rigid rail system. Each comes complete with either the safety cable sleeve, which runs along the cable, or the trolley for the rigid rail.

**Foundations:** Soil investigation, performed by a professional geotechnical engineer, should be performed to design the best possible foundation system for each intended tower site. Accurately establishing the soil condition is crucial in determining the right foundation type. The soil report should include the following information, where applicable: allowable bearing pressure, coefficient of active and passive soil pressure, angle of internal friction, unconfined compression strength, water table level, density of soil, depth of frost penetration, end bearing and skin friction (tension and compression) capacities for piles, and soil resistivity and corrosive nature of the soil. For rock sites, the report should include: type and condition of rock, depth to sound rock, density, allowable bearing pressure, shear strength, water table level, recommended anchoring procedure and rock quality designation (RQD).

**Frequency:** The number of times per second that wave cycles occur.



**1G: First Generation Networks:** The original generation of cellular phones and paging devices introduced in the mid-1980s.

**2G: Second Generation Networks:** Second generation of cellular devices.

**3G: Third Generation Networks:** The newest generation of mobile communications, it is based on the GSM core. This advance allows greater bandwidth, opening the way to increased data-over-wireless solutions such as smart phones.

**ADC (Analog-to-Digital Converter):** A device that converts analog data into digital data.

**Amplifier:** A device that strengthens the signal by increasing its amplitude.

**Amplitude:** The magnitude of a wave.

**Amplitude Modulation:** A method of modulation in which an information signal is superimposed over a carrier signal by varying the amplitude of the carrier signal.

**AMPS (Advanced Mobile Phone System):** Analog Cellular represents the majority of cellular phone systems in the United States. AMPS provides one voice conversation per channel and does not offer multiple services like GSM, USDC, and iDEN.

**Analog Data:** Information represented as a continuous wave in which there can be infinite variations between two points.

**Antenna:** A device that sends and receives radio signals by converting alternating voltages to and from electromagnetic fields.

**Antenna Gain:** A measure of an antenna's capability to concentrate or receive electromagnetic energy in or from a given direction.

**Antenna Mounts:** Usually consisting of hollow structural steel (HSS) and structural angles, they are used to mount the antenna to the tower structure. Typically, HSS mounts for a dish may involve utilizing a 4 1/2" diameter section; whereas, cellular antennas will utilize a 2 7/8" diameter section.

**Anti-Climbs:** These are installed near the base of the structure to prevent unauthorized personnel from climbing. They come in the form of expanded metal mesh, barbed wires with framing, steel sheet or ladder guards with padlocks.

**Base Station:** A device in a cellular network that handles radio frequency communications with phones and other cellular devices within that cell.

**Bluetooth:** Championed by companies like Ericsson, IBM, SAGEM, Nokia and Toshiba, this is a proposal for short-range connections between devices such as smart phones, handhelds and desktop computers.

**Bolts:** Used on communication structures, bolts are high-strength types. Some designations are ASTM Standard A307, A325, and A490, as well as CSA Standard B33.4 Grades 5 and 5.2, with A325 being the most widely used.

**BSC:** The BSC is the controlling element between the cell sites, or Enhanced Base Transceiver System (EBTS), and the Mobile Switching Center (MSC). The transmission system compresses and encodes the data channel, allowing a single T1/E1 link to carry four times the number of traffic channels. The BSC also transcodes the digital VSELP phone call to Pulse Code Modulation (PCM) to enable communication with the (PSTN) Public Services Telephone Network.

**Candelabra:** Also known as a T-Bar mount. This is used to support a number of large antennas, such as TV broadcast or a multiple antenna support frame. Candelabra is installed typically at the top of the tower. The large support frame projects in two or three symmetric directions away from the tower center, with the antennas mounted near the perimeter end of the candelabra frame. The center-to-center distance between antennas, which indicates the size of the candelabra, can range from 30 ft. to 75 ft. Often, guy cable connections are made to the candelabra to provide structural support for the tower.

**Carrier Signal:** An RF wave used to carry information.

**Catwalks:** These allow access to the opposite faces of a large-faced, self-supporting tower for maintenance of lighting, transmission lines, and antennas.

**CDMA (Code Division Multiple Access):** A digital spread-spectrum wireless technology used in digital phones, including the forthcoming pdQ smart phones. The next generation, still under development, is called third generation (3G) and will have enough bandwidth for tasks like videoconferencing.

**CDPD (Cellular Digital Packet Data):** A digital cellular standard used in some smart phones. Transmission rates are limited to 19.2 Kbps.

**Cell:** A geographic area in a cellular network that contains radio base stations, antennas, power sources, and communications to a central switching facility.

**Cellular Network:** A network that uses a system of overlapping cells as a way to allow wireless devices within it to communicate.





**Frequency Modulation (FM):** A method of modulation in which an information signal is superimposed over a carrier signal by varying the frequency of the carrier signal.

**Frequency Reuse:** A technique that allows cell phone networks to use the same frequency for different subscribers in different cells.

**GHz (Gigahertz):** One billion hertz; one billion cycles per second.

**GMSC (Gateway Mobile Switching Center):** A center that routes calls to and from a cellular network to the public telephone system and other cellular networks.

**GPRS (General Packet Radio Service):** An addition to GSM technology, it is a protocol for sending and receiving data packets over a digital wireless network. It is considered an efficient use of limited bandwidth, and is particularly suited for sending and receiving small bursts of data.

**Grounding:** There are two levels of grounds: primary and secondary. Primary ground provides a direct continuous electrical path from the structure to the earth or some other conducting body for the safe discharging of lightning strikes, high voltage, or static. Secondary ground provides the conducting connection for any appurtenance to the structure. All structures must be grounded during erection.

**GSM (Global System for Mobile Communications):** A digital wireless standard often known as PCS in North America, it has a maximum data transfer rate of 9.6 Kbps.

**Guy Anchors:** In "normal" soil conditions, guy anchors will usually employ deadman anchors. The deadman anchor system consists of a rectangular concrete anchor block with a steel shaft imbedded in the block. The block is buried at a depth dictated by the applied uplift and horizontal forces from the combined guy resultant force. At the other end of the shaft, a plate is connected to the shaft to pick up the guy terminations. Guy anchor foundations can also be in the form of drilled caissons and piles with concrete cap. For sound rock sites, welded plate assembly, which is anchored to the rock, acts as the interface member connecting the guy terminations.

**Guy Grounding:** This is achieved with the same available grounding rods as the mast. A single #2 bare stranded copper wire connects each guy together with ground connectors to the ground rod.

**Handoff:** A technique in which, when a cell phone subscriber travels from one cell to another, the communications with the network are transferred from one base station to another.

**HF (High Frequency):** Electromagnetic waves between 3 and 30 MHz; used in AM broadcasting and in short-wave amateur radio.

**Hz (Hertz):** A measurement of frequency that equals one cycle per second.

**Hot-Dip Galvanizing:** Treating a steel component with hot-dip galvanizing dramatically increases the life of the structure. All members are hot-dip galvanized in accordance with ASTM A 123 and A 153 or CAN/CSA-G164. Hot-dip galvanizing includes all bolt and nuts. If minor damage occurs during erection, cold galvanizing or zinc-rich paint is applied as touch-up. Hot-dip galvanizing used as a protective coating can save money in both the short and the long term. Coatings have a long lifespan: 20 to 25 years in urban and coastal exposures, and 50 years in rural environments. The galvanized coating is bonded metallurgically to the base steel. Maintenance of the protective coating is minimized, especially if it is coated with paint, providing dual protection.

**Ice Guards:** These guards provide protection of antennas from falling objects. In sites where ice accumulation is common, ice guards should be installed over antennas and other equipment.

**kHz (Kilohertz):** One thousand hertz; one thousand cycles per second.

**Lightning Rod:** When this is installed at the very top of the structure, it has a 5/8" diameter x 5' 4" long dimension. The galvanized steel rod has a threaded bottom end for easy bonding to the tower steel.

**LOS (Line-Of-Sight):** A method of transmission in which the sending and receiving devices must be in a line with each other, with no obstacles between them.

**Mast Grounding:** This can be completed by the installation of either the galvanizing grounding rod or the copper grounding rod with #2 bare stranded copper wires connecting the tower base to the earth. In areas where soil conditions do not permit vertical installation of the grounding rod, as may be the case for rock sites with shallow depth of overburden, it can be installed horizontally at a minimum depth of 6 inches. In the United States, TIA/EIA-222 calls for a minimum of two 5/8" diameter galvanized steel ground rods driven no less than 8 ft. into the ground, 180° apart, adjacent to the structure base. Radian's standard grounding rod is 3/4" diameter x 10 ft. long. For self-supporting towers with a base width greater than 5 ft., each leg must be grounded.

**Member Shapes:** These are appropriate for communication structure members and are available in several cross sections. Angle members are popular. Solid rounds, tubes, pipes, channels, and wide flanges are used. Section dimensions are in conformance with ASTM Standard A6 and CSA G40.20.

**RADIAN**

# glossary of terms

**MF (Medium Frequency):** Electromagnetic waves between 300 and 3,000 kHz; used in AM broadcasting.

**MHz (Megahertz):** One million hertz; one million cycles per second.

**Microwaves:** Electromagnetic waves in the UHF, SHF and EHF spectrum. They have the highest frequencies in the RF band, and because of that, they have the shortest wavelengths.

**MMS (Message Mail Service):** Encompasses all the software and hardware required to store and deliver alphanumeric text messages. The MMS is a form of paging that is displayed on the subscriber unit. The subscriber units can store up to 16 messages of 140 characters each.

**Modulation:** The process or technique of modifying waves to transmit information.

**Modulator:** A device that modifies carrier waves to transmit information.

**MSC (Mobile Switching Center):** Provides the interface between the PSTN and the iDEN network. The MSC is the telephone switching office for all calls that are sent or received by subscriber units. The MSC controls the call set-up and routing procedures by functioning much like a land network switching office. To protect against fraud, the MSC supports advanced security procedures that control access to the radio channels, ensuring that critical identification parameters are never transmitted over the air.

**Obstruction Marking:** Communication structures may pose a hazard to aircraft navigation. If towers require marking in the United States, they must meet the Federal Aviation Administration (FAA) Advisory Circular AC 70/7460-1, "Obstruction Marking and Lighting". Federal Communication Commission (FCC) Rules and Regulations also cover marking and lighting of antenna towers, which are identical to FAA standards. In Canada, obstruction marking must be in accordance with Transport Canada (Aviation) Standard TP 382. Red marker lights, white medium-intensity or white high-intensity marker lights are used as appropriate to meet the aviation standards.

**Omni-Directional Antenna:** An antenna that transmits or receives equally well in all directions.

**PABX (Private Automatic Branch Exchange):** Originally, such systems – called private branch exchanges (PBX) – required the use of a live operator. Since almost all private branch exchanges today are automatic, the abbreviation "PBX" usually implies a "PABX."

**Painting:** Paint finishes must comply with FAA standards in the United States and Transport Canada (Aviation) Standard TP 382 in Canada. At Radian, engineered water-based paints are used. Water-based protective coating specifically designed for application on the communication structures is used by Radian. Towers are painted in standard aviation (international) orange and white. Climbing ladders, platforms, and walkways are not painted. The smoothness of these surfaces, if painted, will introduce potential danger to climbers. Radian towers are painted in our shop in a controlled environment. This process yields superior product over field-painted towers.

**PBX (Private Branch Exchange):** A telephone system within an enterprise that switches calls between enterprise users on local lines while allowing all users to share a certain number of external phone lines. The main purpose of a PBX is to save the cost of requiring a line for each user to the telephone company's central office.

The PBX is owned and operated by the enterprise rather than the telephone company (which may be a supplier or service provider, however). Private branch exchanges used analog technology originally. Today, PBXs use digital technology (digital signals are converted to analog for outside calls on the local loop using regular telephone service).

#### A PBX includes:

- Telephone trunk (multiple phone) lines that terminate at the PBX
- A computer with memory that manages the switching of the calls within the PBX and in and out of it
- The network of lines within the PBX
- Usually a console or switchboard for a human operator

**PCS (Personal Communications Services):** A digital cellular network operating in the 1900 MHz band. It offers a variety of communications services that analog systems cannot.

**Pinwheel Mount:** Fixed mounted frames may not accommodate an antenna's directional needs. Rotatable pinwheel mounts make it possible to precisely orient the mounting to meet those needs. Three booms allow for different sectorization. Omni-directional antennas can be easily accommodated.

**Platforms:** These provide the means for the climber to rest and/or work. Platforms can also be used to support antennas. Large platforms, usually found at the top of the structure, will incorporate side handrails and guardrails for safety. Small rest platforms are found in tall structures where climbers would require rest.

**Propagation Loss:** The weakening of a signal as it travels through the atmosphere.

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**QAM (Quad Amplitude Modulation):** QAM results in 64 Kbps data rate over a 25-kHz channel.

**RF (Radio Frequency):** The portion of the electromagnetic spectrum used to transmit information.

**Receiver:** A device that receives information from an antenna and processes the information so that it can be used in some way.

**Rotatable Pinwheels:** These pinwheels make it possible to address changes in the final antenna direction. Three booms allow for sectorization. Omni-directional antennas can be easily accommodated.

**SHF (Super-High Frequency):** Electromagnetic waves between 3 and 30 GHz; used in fixed wireless communications and for satellite transmissions.

**Slenderness Ratio:** This ratio is equal to the ratio of the unsupported length over the member cross-section radius of gyration. Radius of gyration of a member is equal to the square root of the moment of inertia divided by the area. Members carrying compression loads are limited to 120 to 150 for primary (leg) members, 200 for main (bracing) members other than leg members, and 240 to 250 for secondary (redundant) members. These limits encourage the utilization of the optimal member capacities.

**SONET (Synchronous Optical Network)** is a standard for optical transport formulated by the Exchange Carriers Standards Association (ECSA) for the American National Standards Institute (ANSI), which sets industry standards in the U.S. for telecommunications and other industries.

**TDMA (Time Division Multiple Access):** TDMA utilizes GPS satellites to reference a synchronized time, and then divides the channel into time slots. As a result, channel capacity is increased because one channel has now been converted to multiple voice or data transmission vehicles. TDMA is a proven technology in cellular systems across North America, Europe, and in Japan.

**Thickness:** This is a measure of the size of connection plates. Good engineering design specifies the minimum thickness of connection plate necessary to meet the rigidity requirements of the structure.

**Tower Bases:** These may utilize standard pier and pad (spread footing) foundations in "normal" soil conditions. In poor conditions, they may require deep foundations, such as drilled caissons or driven piles. Other considerations are timber piles and mat foundation. Rock anchoring will be used where sound rock is

available.

**Transceiver:** A device that includes both a transmitter and a receiver.

**Transmitter:** A device that sends RF signals that carry information.

**UHF (Ultra-High Frequency):** Electromagnetic waves between 300 and 3,000 MHz; used in television broadcasting and by cellular telephones.

**Ultra Ground:** This is an electro-chemical grounding device that achieves a high degree of grounding efficiency by spreading electrolytic "roots" into the soil in which they are embedded. Straight Ultra Ground is recommended wherever it is possible to dig down 10 ft. However, L-shaped is available for installations where shallow bedrock or flowing water makes the employment of straight rods unsuitable.

**UMTS (Universal Mobile Telecommunications System):** A so-called "third-generation" (3G), broadband, packet-based transmission of text, digitized voice, video, and multimedia at data rates up to and possibly higher than 2 megabits per second (Mbps), offering a consistent set of services to mobile computer and phone users no matter where they are located in the world.

Once UMTS is fully implemented, computer and phone users can be constantly attached to the Internet as they travel, and as they use roaming service, have the same set of capabilities no matter where they travel. Users will have access through a combination of terrestrial wireless and satellite transmissions. Until UMTS is fully implemented, users can have multi-mode devices that switch to the currently available technology (such as GPRS and EDGE) where UMTS is not yet available.

**USDC (United States Digital Cellular):** USDC utilizes TDMA to offer phone and paging service over a 25-kHz channel divided into two time slots.

**VHF (Very High Frequency):** Electromagnetic waves between 30 and 300 MHz; used in FM radio and television broadcasting.

**VLF (Very Low Frequency):** Electromagnetic waves between 3 and 30 kHz; used in maritime communications.

**Voice Channel:** The channel in a cellular network used for transmitting voice signals.

**Voice Coding:** The compression of a digital voice signal so that it can be transmitted using less bandwidth than if it were not compressed.



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# glossary of terms

**VSELP (Vector Sum Excited Linear Prediction):** VSELP digitally codes and significantly compresses voice signals, increasing radio channel capacity by reducing the amount of information that needs to be transmitted. VSELP provides iDEN systems with the capability to fit voice transmission into the smaller transmissions vehicle that results from TDMA.

**Waveguide Bridges:** These bridges or transmission line bridges provide safe means for the transmission lines to interface from the equipment building to the tower. Similar to the ice guards, the bridge protects the lines from falling objects.

**Waveguide Ladders:** These ladders or transmission line ladders support the lines vertically along the tower structure. To alleviate the self-weight of the waveguide ladder framing, it may utilize its own foundations.

**Wavelength:** The length of an electromagnetic wave. In other words, the length between the wave's peaks.

**W-CDMA (Wideband Code Division Multiple Access):** A third-generation mobile communications protocol similar to GSM that is expected to provide enough bandwidth for wireless multimedia applications.

**Wire Rope/Strand:** These are typically used on guyed towers as guy strands, extra-high strength, and bridge strands. Various guy terminations are possible for each. However, depending on the hardware used, the guy efficiency factor may be reduced.

**Whip Antenna:** A kind of antenna often used in cars and cell phones.

**YAGI Antenna:** A kind of antenna often used for TV reception and amateur radio. It was designed to provide high gain for VHF and UHF signals.



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100080	#10 copper solid RW90-40 black	\$0.15	104	110033	3/4" x 4" A325 bolt assembly c/w flat washer	\$2.32	120
100119	#8 copper str RW90-40 black	\$0.25	104	110034	3/4" x 4 1/4" A325 bolt assembly c/w flat washer	\$2.42	120
100122	#6 copper str RW90-40 black	\$0.39	104	110035	3/4" x 4 1/2" A325 bolt assembly c/w flat washer	\$2.44	120
110001	1/2" x 1 1/4" A325 bolt assembly c/w flat washer	\$0.87	120	110036	3/4" x 4 3/4" A325 bolt assembly c/w flat washer	\$2.51	120
110002	1/2" x 1 1/2" A325 bolt assembly c/w flat washer	\$0.90	120	110037	3/4" x 5" A325 bolt assembly c/w flat washer	\$2.62	120
110003	1/2" x 1 3/4" A325 bolt assembly c/w flat washer	\$0.92	120	110038	3/4" x 6" A325 bolt assembly c/w flat washer	\$2.90	120
110004	1/2" x 2" A325 bolt assembly c/w flat washer	\$0.97	120	110039	3/4" x 8" c/w 2 lw & 2 nuts step bolt	\$4.32	124
110005	1/2" x 2 1/4" A325 bolt assembly c/w flat washer	\$0.99	120	110040	7/8" x 2 1/4" A325 bolt assembly c/w flat washer	\$2.69	120
110006	1/2" x 2 1/2" A325 bolt assembly c/w flat washer	\$1.04	120	110041	7/8" x 2 1/2" A325 bolt assembly c/w flat washer	\$2.78	120
110007	1/2" x 2 3/4" A325 bolt assembly c/w flat washer	\$1.07	120	110042	7/8" x 2 3/4" A325 bolt assembly c/w flat washer	\$2.87	120
110008	1/2" x 3" A325 bolt assembly c/w flat washer	\$1.11	120	110043	7/8" x 3" A325 bolt assembly c/w flat washer	\$2.96	120
110009	5/8" x 1 1/2" A325 bolt assembly c/w flat washer	\$1.20	120	110044	7/8" x 3 1/4" A325 bolt assembly c/w flat washer	\$3.08	120
110010	5/8" x 1 3/4" A325 bolt assembly c/w flat washer	\$1.24	120	110045	7/8" x 3 1/2" A325 bolt assembly c/w flat washer	\$3.18	120
110011	5/8" x 2" A325 bolt assembly c/w flat washer	\$1.29	120	110046	7/8" x 3 3/4" A325 bolt assembly c/w flat washer	\$3.26	120
110012	5/8" x 2 1/4" A325 bolt assembly c/w flat washer	\$1.35	120	110047	7/8" x 4" A325 bolt assembly c/w flat washer	\$3.36	120
110013	5/8" x 2 1/2" A325 bolt assembly c/w flat washer	\$1.40	120	110048	7/8" x 4 1/4" A325 bolt assembly c/w flat washer	\$3.45	120
110014	5/8" x 2 3/4" A325 bolt assembly c/w flat washer	\$1.43	120	110049	7/8" x 4 1/2" A325 bolt assembly c/w flat washer	\$3.56	120
110015	5/8" x 3" A325 bolt assembly c/w flat washer	\$1.48	120	110050	7/8" x 5" A325 bolt assembly c/w flat washer	\$3.69	120
110016	5/8" x 3 1/4" A325 bolt assembly c/w flat washer	\$1.53	120	110051	7/8" x 5 1/2" A325 bolt assembly c/w flat washer	\$3.75	120
110017	5/8" x 3 1/2" A325 bolt assembly c/w flat washer	\$1.65	120	110053	1" x 2 1/4" A325 bolt assembly c/w flat washer	\$3.34	121
110018	5/8" x 3 3/4" A325 bolt assembly c/w flat washer	\$1.70	120	110054	1" x 2 1/2" A325 bolt assembly c/w flat washer	\$3.44	121
110019	5/8" x 4" A325 bolt assembly c/w flat washer	\$1.77	120	110055	1" x 2 3/4" A325 bolt assembly c/w flat washer	\$3.56	121
110020	5/8" x 4 1/2" A325 bolt assembly c/w flat washer	\$2.45	120	110056	1" x 3" A325 bolt assembly c/w flat washer	\$3.67	121
110021	5/8" x 5" A325 bolt assembly c/w flat washer	\$2.65	120	110057	1" x 3 1/4" A325 bolt assembly c/w flat washer	\$3.79	121
110022	5/8" x 6" A325 bolt assembly c/w flat washer	\$2.67	120	110058	1" x 3 1/2" A325 bolt assembly c/w flat washer	\$3.91	121
110023	3/4" x 1 1/2" A325 bolt assembly c/w flat washer	\$1.85	120	110059	1" x 3 3/4" A325 bolt assembly c/w flat washer	\$4.22	121
110024	3/4" x 1 3/4" A325 bolt assembly c/w flat washer	\$1.90	120	110060	1" x 4" A325 bolt assembly c/w flat washer	\$4.35	121
110025	3/4" x 2" A325 bolt assembly c/w flat washer	\$1.94	120	110061	1" x 4 1/4" A325 bolt assembly c/w flat washer	\$4.52	121
110026	3/4" x 2 1/4" A325 bolt assembly c/w flat washer	\$2.02	120	110062	1" x 4 1/2" A325 bolt assembly c/w flat washer	\$4.63	121
110027	3/4" x 2 1/2" A325 bolt assembly c/w flat washer	\$2.00	120	110063	1" x 4 3/4" A325 bolt assembly c/w flat washer	\$4.79	121
110028	3/4" x 2 3/4" A325 bolt assembly c/w flat washer	\$2.07	120	110064	1" x 5" A325 bolt assembly c/w flat washer	\$4.91	121
110029	3/4" x 3" A325 bolt assembly c/w flat washer	\$2.14	120	110065	1" x 5 1/4" A325 bolt assembly c/w flat washer	\$5.88	121
110030	3/4" x 3 1/4" A325 bolt assembly c/w flat washer	\$2.19	120	110066	1" x 6" A325 bolt assembly c/w flat washer	\$5.89	121
110031	3/4" x 3 1/2" A325 bolt assembly c/w flat washer	\$2.26	120	110067	1" x 7" A325 bolt assembly c/w flat washer	\$6.26	121
110032	3/4" x 3 3/4" A325 bolt assembly c/w flat washer	\$2.33	120				



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110080	1/4" x 1" gr. 5 bolt assembly c/w flat washer	\$0.30	122	110125	5/8" x 8" gr. 5 bolt assembly c/w flat washer	\$3.64	122
110081	1/4" x 1 1/4" gr. 5 bolt assembly c/w flat washer	\$0.33	122	110136	3/8" x 4" HDG J-bolt assembly	\$2.89	124
110082	1/4" x 1 3/4" gr. 5 bolt assembly c/w flat washer	\$0.51	122	110140	1/4" dia. thread gr. 2 hex nut	\$0.17	124
110083	1/4" x 2 1/2" gr. 5 bolt assembly c/w flat washer	\$0.63	122	110142	3/8" dia. thread gr. 2 hex nut	\$0.27	124
110084	5/16" x 1 1/4" gr. 5 bolt assembly c/w flat washer	\$0.71	122	110143	1/2" 13 UNC gr. 2H hex nut	\$0.24	124
110085	5/16" x 1 1/2" gr. 5 bolt assembly c/w flat washer	\$0.79	122	110144	1/2" dia. thread gr. 2 hex nut	\$0.35	124
110086	5/16" x 2 1/4" gr. 5 bolt assembly c/w flat washer	\$0.83	122	110145	9/16" dia. thread gr. 2 hex nut	\$0.42	124
110087	5/16" x 4" gr. 5 bolt assembly c/w flat washer	\$1.09	122	110146	5/8" 11 UNC gr. 2H hex nut	\$0.39	124
110089	3/8" x 1 1/4" gr. 5 bolt assembly c/w flat washer	\$0.51	122	110148	3/4" 10 UNC gr. 2H hex nut	\$0.56	124
110090	3/8" x 1 1/2" gr. 5 bolt assembly c/w flat washer	\$0.53	122	110149	7/8" 9 UNC gr. 2H hex nut	\$1.03	124
110091	3/8" x 1 3/4" gr. 5 bolt assembly c/w flat washer	\$0.61	122	110150	1" 8 UNC gr. 2H hex nut	\$1.31	124
110092	3/8" x 2" gr. 5 bolt assembly c/w flat washer	\$0.65	122	110151	1 1/8" 7 UNC gr. 2H hex nut	\$2.26	124
110093	3/8" x 2 1/4" gr. 5 bolt assembly c/w flat washer	\$0.71	122	110152	1 1/4" 7 UNC gr. 2H hex nut	\$2.99	124
110094	3/8" x 2 1/2" gr. 5 bolt assembly c/w flat washer	\$0.71	122	110160	1/2" dia. thread pal hex nut	\$0.24	124
110095	3/8" x 2 3/4" gr. 5 bolt assembly c/w flat washer	\$0.78	122	110161	5/8" dia. thread pal hex nut	\$0.42	124
110096	3/8" x 3" gr. 5 bolt assembly c/w flat washer	\$0.84	122	110162	3/4" dia. thread pal hex nut	\$0.66	124
110097	3/8" x 3 1/4" gr. 5 bolt assembly c/w flat washer	\$0.86	122	110164	1" dia. thread pal hex nut	\$0.92	124
110098	3/8" x 3 1/2" gr. 5 bolt assembly c/w flat washer	\$0.92	122	110169	3/8" dia. thread stainless steel hex nut	\$0.29	124
110099	3/8" x 3 3/4" gr. 5 bolt assembly c/w flat washer	\$1.02	122	110187	1/4" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.20	125
110100	3/8" x 4" gr. 5 bolt assembly c/w flat washer	\$1.06	122	110189	3/8" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.20	125
110101	3/8" x 4 1/2" gr. 5 bolt assembly c/w flat washer	\$1.08	122	110191	1/2" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.23	125
110102	3/8" x 5" gr. 5 bolt assembly c/w flat washer	\$1.18	122	110192	5/8" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.24	125
110103	3/8" x 5 1/2" gr. 5 bolt assembly c/w flat washer	\$1.22	122	110193	3/4" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.26	125
110104	3/8" x 6" gr. 5 bolt assembly c/w flat washer	\$1.27	122	110194	1 1/4" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.29	125
110105	3/8" x 6 1/2" gr. 5 bolt assembly c/w flat washer	\$1.35	122	110195	1/4" flat washer galvanized	\$0.14	125
110106	3/8" x 9" gr. 5 bolt assembly c/w flat washer	\$1.35	122	110196	3/8" flat washer galvanized	\$0.15	125
110111	1/2" x 3" gr. 5 bolt assembly c/w flat washer	\$1.08	122	110197	3/8" lock washer (spring) galvanized	\$0.02	125
110112	1/2" x 3 1/2" gr. 5 bolt assembly c/w flat washer	\$1.12	122	110200	3/8" lock washer (spring) stainless steel	\$0.20	125
110113	1/2" x 3 3/4" gr. 5 bolt assembly c/w flat washer	\$1.19	122	110201	1/2" flat washer galvanized	\$0.17	125
110114	1/2" x 4" gr. 5 bolt assembly c/w flat washer	\$1.29	122	110202	1/2" hdn flat washer (F436) galvanized	\$0.24	125
110115	1/2" x 4 1/2" gr. 5 bolt assembly c/w flat washer	\$1.32	122	110203	1/2" lock washer (spring) galvanized	\$0.05	125
110116	1/2" x 5" gr. 5 bolt assembly c/w flat washer	\$1.39	122	110204	1/2" lock washer (spring) stainless steel	\$0.24	125
110117	1/2" x 5 1/2" gr. 5 bolt assembly c/w flat washer	\$2.09	122	110205	5/8" hdn flat washer (F436) galvanized	\$0.27	125
110118	1/2" x 6" gr. 5 bolt assembly c/w flat washer	\$1.77	122	110206	5/8" lock washer (spring) galvanized	\$0.09	125
				110207	3/4" flat washer galvanized	\$0.28	125
				110208	3/4" hdn flat washer (F436) galvanized	\$0.38	125
				110209	3/4" lock washer (spring) galvanized	\$0.14	125
				110210	7/8" hdn flat washer (F436) galvanized	\$0.68	125
				110211	7/8" lock washer (spring) galvanized	\$0.33	125
				110212	7/8" flat washer galvanized	\$0.43	125
				110213	1" flat washer galvanized	\$0.49	125
				110214	1" hdn flat washer (F436) galvanized	\$0.83	125
				110215	1" lock washer (spring) galvanized	\$0.36	125
				110216	1 1/8" hdn flat washer (F436) galvanized	\$0.95	125
				110219	1 1/4" hdn flat washer (F436) galvanized	\$1.09	125
				110225	3/8" flat washer stainless steel	\$0.20	125
				110246	3/8" x 5/8" x 1 7/8" u-bolt assembly c/w flat & lock washers	\$1.22	123
				110247	3/8" x 7/8" x 2 3/8" u-bolt assembly c/w flat & lock washers	\$1.33	123
				110248	3/8" x 1 1/4" x 3 1/8" u-bolt assembly c/w flat & lock washers	\$1.61	123

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110249	3/8" x 1 11/16" x 3 3/8" u-bolt assembly c/w flat & lock washers	\$1.88	123	110776	5/16" x 7" gr. 5 bolt assembly c/w flat washer	\$1.63	122
110251	3/8" x 2" x 4 5/16" u-bolt assembly c/w flat & lock washers	\$2.18	123	110777	5/16" x 5" gr. 5 bolt assembly c/w flat washer	\$1.29	122
110252	3/8" x 2 7/16" x 4 13/16" u-bolt assembly c/w flat & lock washers	\$2.62	123	110818	1/2" x 1 1/4" A325 bolt assembly c/w lock washer	\$0.87	119
110254	1/2" x 1 11/16" x 4 1/4" u-bolt assembly c/w flat & lock washers	\$2.37	123	110819	1/2" x 1 1/2" A325 bolt assembly c/w lock washer	\$0.89	119
110255	1/2" x 2 1/4" x 4 3/4" u-bolt assembly c/w flat & lock washers	\$2.82	123	110820	1/2" x 1 3/4" A325 bolt assembly c/w lock washer	\$0.91	119
110256	1/2" x 2 1/2" x 5 1/4" u-bolt assembly c/w flat & lock washers	\$3.07	123	110821	1/2" x 2" A325 bolt assembly c/w lock washer	\$0.96	119
110257	1/2" x 2 15/16" x 5 11/16" u-bolt assembly c/w flat & lock washers	\$3.50	123	110822	1/2" x 2 1/4" A325 bolt assembly c/w lock washer	\$1.04	119
110258	1/2" x 3 9/16" x 6 1/4" u-bolt assembly c/w flat & lock washers	\$3.79	123	110823	1/2" x 2 1/2" A325 bolt assembly c/w lock washer	\$1.11	119
110259	1/2" x 4 1/8" x 6 1/4" u-bolt assembly c/w flat & lock washers	\$3.90	123	110825	1/2" x 3" A325 bolt assembly c/w lock washer	\$1.18	119
110260	1/2" x 4 9/16" x 7 1/4" u-bolt assembly c/w flat & lock washers	\$4.79	123	110830	3/4" x 1 3/4" A325 bolt assembly c/w lock washer	\$1.92	119
110263	5/8" x 3 1/8" x 5 3/4" u-bolt assembly c/w flat & lock washers	\$5.52	123	110831	3/4" x 2" A325 bolt assembly c/w lock washer	\$1.98	119
110268	5/8" x 4 9/16" x 7 1/8" u-bolt assembly c/w flat & lock washers	\$5.90	123	110832	3/4" x 2 1/4" A325 bolt assembly c/w lock washer	\$2.40	119
110277	5/8" x 6 7/8" x 9 7/16" u-bolt assembly c/w flat & lock washers	\$5.97	123	110833	3/4" x 2 1/2" A325 bolt assembly c/w lock washer	\$2.00	119
110364	1/4" x 1 1/2" gr. 5 bolt assembly c/w flat washer	\$0.45	122	110834	3/4" x 2 3/4" A325 bolt assembly c/w lock washer	\$2.09	119
110366	5/8" flat washer galvanized	\$0.20	125	110835	3/4" x 3" A325 bolt assembly c/w lock washer	\$2.13	119
110389	7/8" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.27	125	110836	3/4" x 3 1/4" A325 bolt assembly c/w lock washer	\$2.16	119
110390	1" long bolt spacer with 1/2" to 3/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.27	125	110837	3/4" x 3 1/2" A325 bolt assembly c/w lock washer	\$2.20	119
110393	1/2" long bolt spacer with 7/8" to 1 1/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.40	125	110838	3/4" x 3 3/4" A325 bolt assembly c/w lock washer	\$2.29	119
110394	5/8" long bolt spacer with 7/8" to 1 1/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.48	125	110840	3/4" x 4 1/4" A325 bolt assembly c/w lock washer	\$2.41	119
110395	3/4" long bolt spacer with 7/8" to 1 1/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.49	125	110841	3/4" x 4 1/2" A325 bolt assembly c/w lock washer	\$3.02	119
110396	7/8" long bolt spacer with 7/8" to 1 1/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.51	125	110843	3/4" x 5" A325 bolt assembly c/w lock washer	\$2.59	119
110397	1" long bolt spacer with 7/8" to 1 1/4" dia. bolts "ring fill" (sch 40 pipe)	\$0.55	125	110844	3/4" x 6" A325 bolt assembly c/w lock washer	\$3.51	119
110399	1/2" dia. malleable iron bevel washer	\$0.52	125	110848	5/8" x 1 1/2" A325 bolt assembly c/w lock washer	\$1.14	119
110400	5/8" dia. malleable iron bevel washer	\$0.61	125	110849	5/8" x 1 3/4" A325 bolt assembly c/w lock washer	\$1.27	119
110453	5/8" x 7" gr. 5 bolt assembly c/w flat washer	\$2.97	122	110850	5/8" x 2" A325 bolt assembly c/w lock washer	\$1.28	119
110459	3/8" x 1" gr. 5 bolt assembly c/w flat washer	\$0.47	122	110851	5/8" x 2 1/4" A325 bolt assembly c/w lock washer	\$1.35	119
110467	1/2" dia. thread stainless steel hex nut	\$0.39	124	110852	5/8" x 2 1/2" A325 bolt assembly c/w lock washer	\$1.39	119
110510	5/8" lock nut pin type anco nuts	\$1.20	124	110853	5/8" x 2 3/4" A325 bolt assembly c/w lock washer	\$1.44	119
110511	3/4" lock nut pin type anco nuts	\$1.50	124	110854	5/8" x 3" A325 bolt assembly c/w lock washer	\$1.47	119
110512	7/8" lock nut pin type anco nuts	\$2.42	124	110855	5/8" x 3 1/4" A325 bolt assembly c/w lock washer	\$1.53	119
110513	1" lock nut pin type anco nuts	\$2.84	124	110856	5/8" x 3 1/2" A325 bolt assembly c/w lock washer	\$1.59	119
110551	3/4" dia. malleable iron bevel washer	\$0.81	125	110857	5/8" x 3 3/4" A325 bolt assembly c/w lock washer	\$1.73	119
110554	1/4" x 2" gr. 5 bolt assembly c/w flat washer	\$0.58	122	110860	5/8" x 5" A325 bolt assembly c/w lock washer	\$2.54	119
110580	1/4" x 3 1/2" gr. 5 bolt assembly c/w flat washer	\$2.40	122	110861	5/8" x 6" A325 bolt assembly c/w lock washer	\$2.69	119
110581	1/2" lock nut pin type anco nuts	\$1.00	124				
110592	5/8" x 3 5/8" x 6 13/16" u-bolt assembly c/w flat & lock washers	\$5.90	123				
110607	5/8" x 5 1/2" gr. 5 bolt assembly c/w flat washer	\$2.04	122				
110689	5/16" x 5 1/2" gr. 5 bolt assembly c/w flat washer	\$1.35	122				

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110864	7/8" x 2 1/4" A325 bolt assembly c/w lock washer	\$2.84	119	130010	1 5/8" coax 1 hole, 4" entry coax cable port boot	\$33.00	153
110865	7/8" x 2 1/2" A325 bolt assembly lock washer	\$2.93	119	130011	3" coax 1 hole, 4" entry coax cable port boot	\$33.00	153
110866	7/8" x 2 3/4" A325 bolt assembly c/w lock washer	\$3.05	119	130012	1/2" coax 2 holes, 4" entry coax cable port boot	\$33.00	153
110867	7/8" x 3" A325 bolt assembly c/w lock washer	\$3.11	119	130013	7/8" coax 2 holes, 4" entry coax cable port boot	\$33.00	153
110868	7/8" x 3 1/4" A325 bolt assembly c/w lock washer	\$3.25	119	130014	1/2" coax 3 holes, 4" entry coax cable port boot	\$33.00	153
110869	7/8" x 3 1/2" A325 bolt assembly c/w lock washer	\$3.34	119	130015	1/4" sflx 3 holes, 4" entry coax cable port boot	\$33.00	153
110870	7/8" x 3 3/4" A325 bolt assembly c/w lock washer	\$3.47	119	130016	3/8" coax 3 holes, 4" entry coax cable port boot	\$33.00	153
110871	7/8" x 4" A325 bolt assembly c/w lock washer	\$3.68	119	130017	7/8" coax 3 holes, 4" entry coax cable port boot	\$33.00	153
110872	7/8" x 4 1/4" A325 bolt assembly c/w lock washer	\$3.75	119	130019	1/2" coax 1 hole, 5" entry coax cable port boot	\$36.00	153
110873	7/8" x 4 1/2" A325 bolt assembly c/w lock washer	\$3.91	119	130020	3/8" coax 1 hole, 5" entry coax cable port boot	\$36.00	153
110875	7/8" x 5 1/2" A325 bolt assembly c/w lock washer	\$4.36	119	130021	7/8" coax 1 hole, 5" entry coax cable port boot	\$36.00	153
110879	1" x 2 3/4" A325 bolt assembly c/w lock washer	\$5.54	119	130022	1 1/4" coax 1 hole, 5" entry coax cable port boot	\$36.00	153
110880	1" x 3" A325 bolt assembly c/w lock washer	\$5.72	119	130023	1 5/8" coax 1 hole, 5" entry coax cable port boot	\$36.00	153
110881	1" x 3 1/4" A325 bolt assembly c/w lock washer	\$5.88	119	130024	3" coax 1 hole, 5" entry coax cable port boot	\$36.00	153
110882	1" x 3 1/2" A325 bolt assembly c/w lock washer	\$6.11	119	130025	1/2" coax 2 holes, 5" entry coax cable port boot	\$36.00	153
110884	1" x 4" A325 bolt assembly c/w lock washer	\$6.36	119	130026	7/8" coax 2 holes, 5" entry coax cable port boot	\$36.00	153
110885	1" x 4 1/4" A325 bolt assembly c/w lock washer	\$6.80	119	130027	1/2" coax 3 holes, 5" entry coax cable port boot	\$36.00	153
110887	1" x 4 3/4" A325 bolt assembly c/w lock washer	\$7.17	119	130028	1/4" sflx 3 holes, 5" entry coax cable port boot	\$36.00	153
110888	1" x 5" A325 bolt assembly c/w lock washer	\$7.35	119	130029	3/8" coax 3 holes, 5" entry coax cable port boot	\$36.00	153
110889	1" x 6" A325 bolt assembly c/w lock washer	\$8.02	119	130030	7/8" coax 3 holes, 5" entry coax cable port boot	\$36.00	153
110890	1" x 7" A325 bolt assembly c/w lock washer	\$9.65	119	130055	1/2" coax 4 holes, 4" entry coax cable port boot	\$33.00	153
110926	5/16" x 3 1/2" gr. 5 bolt assembly c/w flat washer	\$0.88	122	130276	1/4" sflx 1 hole, 5" entry coax cable port boot	\$36.00	153
110927	5/16" x 3 3/4" gr. 5 bolt assembly c/w flat washer	\$0.92	122	130381	WE30 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
110947	5/16" x 3" gr. 5 bolt assembly c/w flat washer	\$0.86	122	130382	WE37 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
110950	3/8" hdn flat washer (F436) galvanized	\$0.07	125	130383	WE37 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
110978	1/2" flat washer stainless steel	\$0.24	125	130384	WE46 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
111007	3/8" x 6" s/s thd rod threaded rod	\$7.00	124	130385	WE46 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
111008	1/2" x 3" s/s thd rod threaded rod	\$11.00	124	130386	WE61, EW52 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
111030	5/8" x 7" c/w 1. lock washer, 2 nuts step bolt	\$2.16	124	130387	WE61, EW52 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
120355	rubber pad 1/2" x 18" x 48"	\$20.00	96	130388	WE65, EW63 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130004	blank, 4" entry coax cable port boot	\$33.00	153	130389	WE65, EW63 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130005	1/2" coax 1 hole, 4" entry coax cable port boot	\$33.00	153	130392	WE78 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130006	1/4" sflx 1 hole, 4" entry coax cable port boot	\$33.00	153	130393	WE78 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130007	3/8" coax 1 hole, 4" entry coax cable port boot	\$33.00	153	130394	WE108, EW90 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130008	7/8" coax 1 hole, 4" entry coax cable port boot	\$33.00	153				
130009	1 1/4" coax 1 hole, 4" entry coax cable port boot	\$33.00	153				





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130395	WE108, EW90 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153	131100	EW43 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130396	WE130, EW127 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153	131101	EW64 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130397	WE130, EW127 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153	131102	EW77 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130398	WE150, EW132 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153	131103	EW85 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130399	WE150, EW132 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153	131104	EW240 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153
130400	WE191, EW180 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153	131105	EW28 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130401	WE191, EW180 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153	131106	EW34 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130402	E220, EW220 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153	131107	EW37 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130403	E220, EW220 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153	131108	EW43 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130955	1 1/4" coax 2 holes, 5" entry coax cable port boot	\$36.00	153	131109	EW64 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130961	7/8" coax 4 holes, 4" entry coax cable port boot	\$33.00	153	131110	EW77 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130970	1/2" sfix 4 holes, 4" entry coax cable port boot	\$33.00	153	131111	EW85 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
130979	1 5/8" coax 2 holes, 5" entry coax cable port boot	\$36.00	153	131112	EW240 1 hole, 5" elliptical waveguide cable entry port boot	\$36.00	153
131079	1/2" sfix 1 hole, 4" entry coax cable port boot	\$33.00	153	131264	1/4" sfix 4 holes, 5" entry coax cable port boot	\$36.00	153
131080	2 1/4" coax 1 hole, 4" entry coax cable port boot	\$33.00	153	131265	1/2" sfix 4 holes, 5" entry coax cable port boot	\$36.00	153
131081	1/4" sfix 2 holes, 4" entry coax cable port boot	\$33.00	153	131266	3/8" coax 4 holes, 5" entry coax cable port boot	\$36.00	153
131082	1/2" sfix 2 holes, 4" entry coax cable port boot	\$33.00	153	131267	1/2" coax 4 holes, 5" entry coax cable port boot	\$36.00	153
131083	3/8" coax 2 holes, 4" entry coax cable port boot	\$33.00	153	131268	7/8" coax 4 holes, 5" entry coax cable port boot	\$36.00	153
131084	1 1/4" coax 2 holes, 4" entry coax cable port boot	\$33.00	153	131416	blank, 5" entry coax cable port boot	\$36.00	153
131085	1/2" sfix 3 holes, 4" entry coax cable port boot	\$33.00	153	140012	1/4" dia. guy strand gr. 180 & EHS grip	\$3.54	128
131086	1/4" sfix 4 holes, 4" entry coax cable port boot	\$33.00	153	140013	5/16" dia. guy strand gr. 180 & EHS grip	\$4.25	128
131087	3/8" coax 4 holes, 4" entry coax cable port boot	\$33.00	153	140014	3/8" dia. guy strand gr. 180 & EHS grip	\$4.76	128
131088	1/2" sfix 1 hole, 5" entry coax cable port boot	\$36.00	153	140015	7/16" dia. guy strand gr. 180 & EHS grip	\$7.48	128
131089	2 1/4" coax 1 hole, 5" entry coax cable port boot	\$36.00	153	140016	1/2" dia. guy strand gr. 180 & EHS grip	\$12.00	128
131090	3 1/2" coax 1 hole, 5" entry coax cable port boot	\$36.00	153	140017	9/16" dia. guy strand gr. 180 & EHS grip	\$19.35	128
131091	4" coax 1 hole, 5" entry coax cable port boot	\$36.00	153	140018	5/8" dia. guy strand gr. 180 & EHS grip	\$36.65	128
131092	1/4" sfix 2 holes, 5" entry coax cable port boot	\$36.00	153	140019	9/16" dia. bridge strand bridge strand grip	\$31.00	128
131093	1/2" sfix 2 holes, 5" entry coax cable port boot	\$36.00	153	140020	5/8" dia. bridge strand bridge strand grip	\$46.95	128
131094	3/8" coax 2 holes, 5" entry coax cable port boot	\$36.00	153	140021	3/4" dia. bridge strand bridge strand grip	\$143.27	128
131095	1/2" sfix 3 holes, 5" entry coax cable port boot	\$36.00	153	140022	7/8" dia. bridge strand bridge strand grip	\$188.45	128
131096	1 1/4" coax 3 holes, 5" entry coax cable port boot	\$36.00	153	140023	13/16" dia. bridge strand bridge strand grip	\$133.60	128
131097	1 5/8" coax 3 holes, 5" entry coax cable port boot	\$36.00	153	140024	11/16" dia. bridge strand bridge strand grip	\$58.11	128
131098	EW34 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153	140027	1/4" dia. 7 strand gr. 180 wire strand	\$0.15	128
131099	EW37 1 hole, 4" elliptical waveguide cable entry port boot	\$33.00	153	140028	5/16" dia. 7 strand gr. 180 wire strand	\$0.22	128
				140029	3/8" dia. 7 strand gr. 180 wire strand	\$0.26	128
				140030	7/16" dia. 7 strand gr. 180 wire strand	\$0.39	128
				140031	1/2" dia. 7 strand gr. 180 wire strand	\$0.51	128
				140032	9/16" dia. 7 strand gr. 180 wire strand	\$0.72	128
				140033	5/8" dia. 7 strand gr. 180 wire strand	\$0.95	128
				140034	1/4" nominal size shackle	\$4.08	127
				140035	5/16" nominal size shackle	\$4.90	127
				140036	3/8" nominal size shackle	\$3.88	127
				140037	1/2" nominal size shackle	\$8.16	127
				140038	5/8" nominal size shackle	\$12.92	127







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140039	3/4" nominal size shackle	\$17.68	127	142261	3/8" dia. 7 strand extra high strength (EHS)	\$0.23	128
140040	7/8" nominal size shackle	\$18.36	127	142264	5/8" dia. 7 strand extra high strength (EHS)	\$0.83	128
140041	1" nominal size shackle	\$25.16	127	142265	5/16" dia. 7 strand extra high strength (EHS)	\$0.20	128
140042	1 1/8" nominal size shackle	\$34.00	127	150001	grd conn 5/16" guy cable	\$3.14	109
140043	1 1/4" nominal size shackle	\$74.80	127	150002	grd conn 3/8" guy cable	\$5.46	109
140044	1 3/8" nominal size shackle	\$103.36	127	150003	grd conn 7/16" to 1/2" guy cable	\$17.06	109
140045	1 1/2" nominal size shackle	\$124.44	127	150004	grd conn 9/16" to 5/8" guy cable	\$18.03	109
140046	1 3/4" nominal size shackle	call	127	150006	grd conn 3/4" to 1" BS	\$38.35	109
140050	2" nominal size shackle	call	127	150007	grd conn 1 1/16" to 1 1/8" BS	\$63.21	109
140051	3/8" x 6" long jaw-eye turnbuckle	\$25.00	127	150008	grd conn 5/8" to 3/4" guy cable	\$8.56	109
140053	1/2" x 12" long jaw-eye turnbuckle	\$29.83	127	150009	grd conn wire to pipe (4 sol to 2/0 str) (7/8" to 1" OD)	\$42.10	112
140054	5/8" x 12" long jaw-eye turnbuckle	\$39.49	127	150011	grd conn wire to pipe tinned (8 sol to 4 str) (7/8" to 1" OD)	\$12.23	112
140056	3/4" x 18" long jaw-eye turnbuckle	\$109.70	127	150012	grd conn wire to plate	\$7.90	110
140057	7/8" x 18" long jaw-eye turnbuckle	\$120.61	127	150013	grd clamp wire to wire (1 str - 4/0 str) (6 str - 2 str)	\$12.00	111
140058	1" x 18" long jaw-eye turnbuckle	\$117.76	127	150014	grd clamp wire to wire (250-500 kcmil) (6 str - 2 str)	\$20.00	111
140060	1 1/4" x 18" long jaw-eye turnbuckle	\$268.11	127	150015	grd terminal wire to plate (4 sol - 1/0 str) (2" x 9/16" holes)	\$25.00	110
140061	1 1/2" x 18" long jaw-eye turnbuckle	\$379.80	127	150016	grd terminal wire to plate (4 sol - 1/0 str) (2" x 7/16" holes)	\$23.00	110
140064	1 3/4" x 18" long jaw-eye turnbuckle	call	127	150017	grd clamp, 1 1/16" - 1 3/8" BS	\$50.00	109
140067	2" x 24" long jaw-eye turnbuckle	call	127	150018	grd conn wire to rod (comp) (#2 str thru 250 kcmil) (3/4 od)	\$45.00	109
140071	1/4" standard thimble	\$0.77	127	150019	grd conn wire to rod (comp) (#2 str thru 2/0 str) (3/4 od)	\$19.00	109
140072	5/16" standard thimble	\$1.02	127	150020	grd conn wire - wire (comp) main (1 str - 2/0 str) branch (1 str - 2/0 str)	\$9.00	108
140073	3/8" standard thimble	\$1.02	127	150022	grd terminal wire to plate (2/0 sol - 4/0 str) (2" x 9/16" holes)	\$29.00	110
140074	3/8" heavy thimble	\$1.84	127	150023	grd clamp wire to wire (1 str - 4/0 str) (1 str - 4/0 str)	\$22.68	111
140075	1/2" heavy thimble	\$3.27	127	150024	grd clamp wire to wire (250-500 kcmil) (1 str - 4/0 str)	\$25.00	111
140076	9/16" heavy thimble	\$3.45	127	150025	grd clamp wire to wire (500-1,000 kcmil) (6 str - 2 str)	\$35.00	111
140077	5/8" heavy thimble	\$4.00	127	150026	grd mold wire to rod (+frame 2/0 wire to 3/4 rod)	\$344.00	114
140078	3/4" heavy thimble	\$8.15	127	150027	handle clamp (76 mm wide mold)	\$92.00	114
140079	7/8" heavy thimble	\$9.30	127	150028	grd mold tee conn (no frame) 2/0 wire to 2/0 wire	\$125.00	114
140080	1" heavy thimble	\$17.35	127	150032	weld metal #90	\$8.00	114
140081	1 1/8" to 1 1/4" heavy thimble	\$25.85	127	150033	weld metal #115	\$10.00	114
140082	1 1/4" to 1 3/8" heavy thimble	\$49.25	127	150036	grd conn wire to pipe (2/0 sol to 250 kcmil) (2" to 2 3/8" OD)	\$17.00	112
140141	3/4" dia. 19 strand bridge strand (ASTM A-586)	\$2.06	128	150039	grd conn (comp) C tap (1/0 to 4-12) (1 to 3-4) (2 to 2-3)	\$4.31	108
140152	5/8" dia. 19 strand bridge strand (ASTM A-586)	\$1.63	128	150040	grd conn (comp) C tap (2 to 6-12) (3 to 5) (4 to 4)	\$3.17	108
140157	1/2" dia. bridge strand bridge strand grip	\$20.00	128	150041	grd lug wire to plate (tinned) (4/0 str to 2 str) (3/8 bolt hole)	\$5.27	113
140192	1/2" dia. 19 strand bridge strand (ASTM A-586)	\$1.35	128	150042	grd lug wire to plate (6 str to 14 sol) (3/16 bolt hole)	\$1.79	113
140213	2 1/2" nominal size shackle	call	127	150044	grd clamp wire to galvanized rod (5/8" - 3/4" rod)	\$3.51	108
140219	1" dia. guy strand gr. 180 & EHS grip	call	128	150045	grd clamp wire to cop. rod (5/8" to 3/4" rod)	\$3.15	108
140225	7/8" dia. 19 strand bridge strand (ASTM A-586)	\$2.93	128	150048	3/4" dia. x 10' copper clad	\$19.00	108
140249	11/16" dia. 19 strand bridge strand (ASTM A-586)	\$1.80	128	150049	1/2" dia. x 4' (copper)	\$32.00	103
140260	9/16" dia. 19 strand bridge strand (ASTM A-586)	\$1.73	128	150053	#10 copper solid bare	\$0.20	104
140261	13/16" dia. 19 strand bridge strand (ASTM A-586)	\$2.80	128	150054	#4 copper str bare	\$0.33	104
142255	1" dia. 19 strand extra high strength (EHS)	\$5.37	128				
142256	7/8" dia. 19 strand extra high strength (EHS)	\$2.90	128				
142257	3/4" dia. 19 strand extra high strength (EHS)	\$2.30	128				
142258	9/16" dia. 7 strand extra high strength (EHS)	\$0.63	128				
142259	1/2" dia. 7 strand extra high strength (EHS)	\$0.44	128				
142260	7/16" dia. 7 strand extra high strength (EHS)	\$0.34	128				



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150055	#2 copper str bare	\$0.69	104	150174	grd connector - 2 cables to bar (4 sol - 2/0 str)	\$11.00	110
150056	#2 copper solid bare	\$0.67	104	150175	grd clamp wire to wire (2 str - 2/0 str) (6 str - 2/0 str)	\$20.00	111
150057	#1/0 copper str bare	\$1.16	104	150176	#2 copper str black UV-proof	\$0.92	104
150058	2/0 copper str bare	\$1.23	104	150180	#2 copper str tinned	\$1.74	104
150059	2/0 copper str tinned	\$1.75	104	150184	grd conn wire to pipe (2/0 sol to 250 kcmil) (1 1/8" to 1 1/4" OD)	\$19.00	112
150060	4/0 copper str bare	\$1.98	104	150185	1/0 copper str black UV-proof	\$1.03	104
150061	#8 copper str bare	\$0.16	104	150201	grd conn wire to pipe (2 sol to 250 kcmil) (3" to 3 1/2" OD)	\$74.00	113
150062	solid copper strap 2" x 1/32"	\$1.81	108	150211	4/0 copper str ins blk	\$1.92	104
150063	solid copper strap 4" x 1/32"	\$3.06	108	150229	3/0 copper str bare	\$1.70	104
150065	solid copper strap 4" x 1/16"	\$6.42	108	150238	grd conn wire to pipe (2/0 sol to 250 kcmil) (4" to 4 1/2" OD)	\$76.00	113
150067	#6 copper str bare	\$0.34	104	150245	#8 copper solid bare	\$0.23	104
150068	grd lug wire to plate (HD) tinned (0 str to 8 str) (1/4 bolt hole)	\$2.28	113	150247	4/0 copper str tinned	\$2.54	104
150069	grd conn wire to wire (10 sol to 2 sol) (10 sol - 2 sol)	\$4.86	111	150250	grd conn wire to pipe (210 sol to 250 kcmil) (1 5/8" to 1 7/8" OD)	\$42.22	112
150070	grd conn wire to pipe (8 sol to 4 str) (1 1/8" to 1 1/4" OD)	\$53.40	112	150251	grd conn wire to pipe (210 sol to 250 kcmil) (2 1/2" to 2 7/8" OD)	\$60.00	113
150072	grd conn c/w 1/2" x 9/16" stud 1 wire (2 - 1/0 str or 2 - 2/0 sol)	\$15.20	110	150258	#2 copper str tinned	\$1.74	104
150073	2/0 copper str RW90-40 blk	\$1.43	104	150269	1/0 copper solid bare	\$1.60	104
150074	grd conn c/w 1/2" x 17/32" in stud 1 wire (2 - 2/0 str or 2 - 3/0 sol)	\$12.00	110	150290	#6 copper solid bare	\$0.33	104
150075	grd conn wire to pipe (4 sol to 2/0 str) (2 1/2" to 2 7/8" OD)	\$35.00	112	150301	grd conn wire to pipe (8 sol to 4 str) (1 5/8" to 1 7/8" OD)	\$52.00	113
150076	grd conn c/w 1/2" x 1 1/16" stud 1 wire (2 - 2/0 str or 2 - 3/0 sol)	\$20.00	110	150306	5/8" dia. x 4' (copper)	\$39.00	103
150077	grd conn c/w 1/2" x 3/4" in stud 1 wire (2 - 2/0 str or 2 - 2/0 sol)	\$17.00	110	150317	#2 copper solid tinned	\$1.49	104
150079	grd conn wire to pipe (4 sol to 2/0 str) (3" to 3 1/2" OD)	\$71.00	113	150321	grd conn wire to pipe (4 str to 4/0 str) (2 1/2" to 3 1/2" OD)	\$38.00	113
150081	ultra ground conc cover box (70 lbs)		105	150323	solid copper strap 1" x 1/8"	\$3.08	108
150084	grd conn wire to pipe (4 sol to 2/0 str) (1 1/8" to 1 1/4" OD)	\$43.45	112	150329	#1 copper str bare	\$1.16	104
150094	grd conn c/w 1/2" x 1 1/4" in stud 2 wire (2 - 2/0 str or 2 - 3/0 sol)	\$56.00	110	160389	RAM spring lever trolley c/w carabiner	\$196.00	84
150110	ultra ground backfill (100-lb bag)		105	160380	journeyman 4 d-ring model harness	\$71.00	90
150114	grd conn (comp) large C tap main (1 - 4/0) branch (1 - 2/0)	\$9.00	108	160381	professional tower harness - medium	\$286.00	90
150116	grd clamp wire to wire (500-1,000 kcmil) (1 str - 4/0 str)	\$36.00	111	160382	professional tower harness - large	\$286.00	90
150128	grd conn wire to pipe (4 sol - 2/0 str) (1 5/8" to 1 7/8" OD)	\$14.00	112	160383	professional tower harness - x large	\$286.00	90
150132	grd conn wire to pipe (8 sol to 4 str) (1 3/8" to 1 1/2" OD)	\$19.00	112	160418	straight cable guide	\$10.00	86
150134	grd conn wire to pipe (2/0 sol - 250 kcmil) (4 to 1 1/2" OD)	\$62.00	113	160419	"L" type cable guide	\$10.00	86
150138	grd conn wire to pipe tinned (4 sol to 2/0 str) (3" to 3 1/2" OD)	\$93.00	113	190056	zinc anode (102" dia. x 1,525) c/w 25' #12 sol THW lead wire	\$54.00	114
150139	grd conn wire to pipe (4 sol to 2/0 str) (2" to 2 3/8" OD)	\$33.00	112	190057	magnesium anode (125" dia. x 1,350) c/w 25' #12 sol THW lead wire	\$101.00	114
150140	grd conn wire to pipe (8 sol to 4 str) (2 1/2" to 2 7/8" OD)	\$33.00	112	91018A1	5/8" dia. s.r. x 5' 4" lightning rod (galv)	\$15.40	103
150141	grd conn wire to pipe (8 sol to 4 str) (4" to 4 1/2" OD)	\$140.00	113	91045B	3/4" dia. x 10' galvanized	\$14.00	108
150142	grd conn wire to pipe (4 sol to 2/0 str) (1 3/8" to 1 1/2")	\$35.00	112	91079A	2 3/8" (60 mm) OD x 6' pipe	\$20.00	64
150147	grd conn c/w 3/8" x 1/2" stud 1 wire (8-2 str or 10-2 sol)	\$20.00	110	91079B	2 3/8" (60 mm) OD x 10' pipe	\$34.00	64
150153	grd conn wire to pipe (2/0 sol to 250 kcmil) (1 3/8" to 1 1/2" OD)	\$12.00	112	91079C	2 3/8" (60 mm) OD x 20' pipe	\$59.00	64
150158	grd conn wire to plate (2/0 sol - 250)	\$14.00	110	91079D	2 3/8" (60 mm) OD x 16' pipe	\$49.00	64
150169	grd conn wire to plate surface (6 str to 350 kcmil) (3/8 bolt hole)	\$3.00	113	91079F	2 3/8" (60 mm) OD x 12' pipe	\$39.00	64
150172	#4 copper str blk UV-proof	\$0.47	104	91079J	2 3/8" (60 mm) OD x 8' pipe	\$29.00	64
				91079L	2 3/8" (60 mm) OD x 14' pipe	\$44.00	64
				91079M	2 3/8" (60 mm) OD x 18' pipe	\$54.00	64
				91080A	2 7/8" (73 mm) OD x 6' pipe	\$40.00	64
				91080B	2 7/8" (73 mm) OD x 10' pipe	\$61.00	64
				91080C	2 7/8" (73 mm) OD x 20' pipe	\$112.00	64
				91080E	2 7/8" (73 mm) OD x 16' pipe	\$91.00	64
				91080G	2 7/8" (73 mm) OD x 8' pipe	\$50.00	64
				91080M	2 7/8" (73 mm) OD x 14' pipe	\$81.00	64
				91080N	2 7/8" (73 mm) OD x 12' pipe	\$71.00	64

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91080T	2 7/8" (73 mm) OD x 18' pipe	\$102.00	64	SAM006-1	tilt mount kit	\$155.00	98
91081A	4 1/2" (114 mm) OD x 6' pipe	\$50.00	64	SAM007-1	(1) - 6' hinge mount 60° legs 2 1/2" to 5", 90° legs 2 1/2" to 6"	\$704.00	73
91081E	4 1/2" (114 mm) OD x 8' pipe	\$71.00	64	SAM007-1A	(1) - 6' hinge mount 60° legs 6" to 8"	\$753.00	73
91082B	4 1/2" (114 mm) OD x 10' pipe	\$86.00	64	SAM007-2	(2) - 6' hinge mount 60° legs 2 1/2" to 5", 90° legs 2 1/2" to 6"	\$1,184.00	73
91082C	4 1/2" (114 mm) OD x 20' pipe	\$158.00	64	SAM007-2A	(2) - 6' hinge mount 60° legs 6" to 8"	\$1,258.00	73
91082E	4 1/2" (114 mm) OD x 12' pipe	\$101.00	64	SAM007-3	(3) - 6' hinge mount 60° legs 2 1/2" to 5", 90° legs 2 1/2" to 6"	\$1,442.00	73
91082J	4 1/2" (114 mm) OD x 16' pipe	\$129.00	64	SAM007-3A	(3) - 6' hinge mount 60° legs 6" to 8"	\$1,515.00	73
91082N	4 1/2" (114 mm) OD x 14' pipe	\$115.00	64	SAM008-1	(1) - 10' hinge mount 60° legs 2 1/2" to 5", 90° legs 2 1/2" to 6"	\$1,008.00	74
91082R	4 1/2" (114 mm) OD x 18' pipe	\$144.00	64	SAM008-1A	(1) - 10' hinge mount 60° legs 6" to 8"	\$1,053.00	74
A51900	3/4" dia. guy strand gr. 180 & EHS grip	\$60.00	128	SAM008-2	(2) - 10' hinge mount 60° legs 2 1/2" to 5", 90° legs 2 1/2" to 6"	\$1,812.00	74
A52100	7/8" dia. guy strand gr. 180 & EHS grip	\$144.00	128	SAM008-2A	(2) - 10' hinge mount 60° legs 6" to 8"	\$1,880.00	74
CL010F	cable guide extension bar	\$2.95	86	SAM008-3	(3) - 10' hinge mount 60° legs 2 1/2" to 5", 90° legs 2 1/2" to 6"	\$2,413.00	74
EP001-1	equipment platform 2' x 4' c/w standard grating	\$279.00	115	SAM008-3A	(3) - 10' hinge mount 60° legs 6" to 8"	\$2,480.00	74
EP001-2	equipment platform 4' x 4' c/w standard grating	\$484.00	115	SAM009-1	round leg dish support frame with 6' mounting arm and 1 1/2" to 3" legs	\$397.00	68
EP001-3	equipment platform 3' x 6' c/w standard grating	\$482.00	115	SAM009-2	round leg dish support frame with 8' mounting arm and 1 1/2" to 3" legs	\$424.00	68
EP001-C	platform corner L3 x 3 x 1/4 clip angle	\$6.00	115	SAM009-3	round leg dish support frame with 10' mounting arm and 1 1/2" to 3" legs	\$450.00	68
EP001-L	standard equipment platform leg 16" dia. pad	\$201.00	115	SAM009-4	round leg dish support frame with 13' mounting arm and 1 1/2" to 3" legs	\$508.00	68
EP001-R	18" x 18" x 1/2" thick rubber pad	\$12.00	115	SAM010-1	round leg face-mounted wireless support frame with 6' mounting arm and 1 1/2" to 3" legs	\$375.00	66
KGRRNA01-C	grounding kit for single guy anchor (copper clad rod)	\$39.00	107	SAM010-2	round leg face-mounted wireless support frame with 8' mounting arm and 1 1/2" to 3" legs	\$415.00	66
KGRRNA01-G	grounding kit for single guy anchor (galvanized rod)	\$34.00	107	SAM010-3	round leg face-mounted wireless support frame with 10' mounting arm and 1 1/2" to 3" legs	\$447.00	66
KGRRNS01-C	grounding kit for three-leg tower (copper clad rod)	\$145.00	106	SAM010-4	round leg face-mounted wireless support frame with 13' mounting arm and 1 1/2" to 3" legs	\$507.00	66
KGRRNS01-G	grounding kit for three-leg tower (galvanized rod)	\$131.00	106	SAM011-1	angle leg face-mounted frame with 6' mounting arm and 2 1/2" to 4" leg	\$554.00	67
KGRRNS02-C	grounding kit for four-leg tower (copper clad rod)	\$193.00	106	SAM011-2	angle leg face-mounted frame with 8' mounting arm and 2 1/2" to 4" leg	\$558.00	67
KGRRNS02-G	grounding kit for four-leg tower (galvanized rod)	\$174.00	106	SAM011-3	angle leg face-mounted frame with 10' mounting arm and 2 1/2" to 4" leg	\$582.00	67
KGRRNU01-C	grounding kit for guyed tower base (copper clad rod)	\$73.00	106	SAM011-4	angle leg face-mounted frame with 13' mounting arm and 2 1/2" to 4" leg	\$592.00	67
KGRRNU01-G	grounding kit for guyed tower base (galvanized rod)	\$63.00	106	SAM011-5	angle leg face-mounted frame with 6' mounting arm and 5" to 6" leg	\$547.00	67
KGRRNRH	lightning rod extension (mount to round HSS)	\$189.00	103	SAM011-6	angle leg face-mounted frame with 8' mounting arm and 5" to 6" leg	\$560.00	67
KGRRNSH	lightning rod extension (mount to sq HSS)	\$221.00	103	SAM011-7	angle leg face-mounted frame with 10' mounting arm and 5" to 6" leg	\$564.00	67
SAB001-1	Tx-line bridge anchor bolt kit 5/8" x 3' thd rods	\$20.00	83	SAM011-8	angle leg face-mounted frame with 13' mounting arm and 5" to 6" leg	\$598.00	67
SAB001-2	Tx-line bridge anchor bolt kit 3/4" x 3' thd rods	\$34.00	83	SAM012-1	angle leg face-mounted dish frame with 6' mounting arm and 2 1/2" to 4" leg	\$547.00	69
SAM001-1	wireless stand-off frame for 2 7/8" (73 mm) OD pipe	\$689.00	72	SAM012-2	angle leg face-mounted dish frame with 8' mounting arm and 2 1/2" to 4" leg	\$574.00	69
SAM001-2	wireless stand-off frame for 4 1/2" (114 mm) OD pipe	\$694.00	72	SAM012-3	angle leg face-mounted dish frame with 10' mounting arm and 2 1/2" to 4" leg	\$601.00	69
SAM001-3	2 3/8" OD x 6' c/w u-bolts	\$29.00	72	SAM012-4	angle leg face-mounted dish frame with 13' mounting arm and 2 1/2" to 4" leg	\$641.00	69
SAM003-1	(1) - 6' wireless hinge mount	\$469.00	73				
SAM003-2	(2) - 6' wireless hinge mount	\$836.00	73				
SAM003-3	(3) - 6' wireless hinge mount	\$1,230.00	73				
SAM004-1	(1) - 10' wireless hinge mount	\$806.00	74				
SAM004-2	(2) - 10' wireless hinge mount	\$1,510.00	74				
SAM004-3	(3) - 10' wireless hinge mount	\$2,110.00	74				
SAM005-1	13' wireless pipe frame c/w 6" (1,830 mm) pipes	\$494.00	70				
SAM005-2	13' wireless pipe frame c/w 8" (2,500 mm) pipes	\$566.00	70				

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SAM012-5	angle leg face-mounted dish frame with 6' mounting arm and 5' to 6" leg	\$574.00	69	SCL002-7	stand-off 3 lev. 3 1/2" to 4" OD (89-102 mm ) sq boom	\$113.00	84
SAM012-6	angle leg face-mounted dish frame with 8' mounting arm and 5" to 6" leg	\$638.00	69	SCL005-1	20' RAM safety Rail system - step bolt Wooden Pole	\$298.00	85
SAM012-7	angle leg face-mounted dish frame with 10' mounting arm and 5" to 6" leg	\$664.00	69	SCL005-2	10' RAM safety Rail system - step bolt Wooden Pole	\$152.00	85
SAM012-8	angle leg face-mounted dish frame with 13' mounting arm and 5" to 6" leg	\$704.00	69	SCL005-3	20' RAM safety Top Rail system - step bolt Wooden Pole	\$292.00	85
SAM013-1	18" (457 mm) stand-off mount	\$239.00	70	SCL005-4	10' RAM safety Top Rail system - step bolt Wooden Pole	\$147.00	85
SAM013-2	24" (610 mm) stand-off mount	\$243.00	70	SCL010-1	25' RAM safety cable system	\$149.00	86
SAM013-3	36" (914 mm) stand-off mount	\$251.00	70	SCL010-2	50' RAM safety cable system	\$179.00	86
SAM014-1	non-penetrating tripod mount with 2 7/8" OD mast	\$488.00	93	SCL010-3	100' RAM safety cable system	\$226.00	86
SAM014-2	non-penetrating tripod mount with 4 1/2" OD mast	\$679.00	93	SCL010-4	150' RAM safety cable system	\$274.00	86
SAM014-3	ballast tie-down kit	\$89.00	93	SCL010-5	200' RAM safety cable system	\$321.00	86
SAM015-1	wall mount 2 3/8" dia. x 6'	\$63.00	97	SCL010-6	250' RAM safety cable system	\$365.00	86
SAM015-2	wall mount 2 3/8" dia. x 8'	\$69.00	97	SCL010-7	300' RAM safety cable system	\$417.00	86
SAM015-3	wall mount 2 3/8" dia. x 10'	\$73.00	97	SCL010-8	350' RAM safety cable system	\$460.00	86
SAM016-1	wall mount 2 7/8" dia. x 6'	\$130.00	97	SCL010-9	400' RAM safety cable system	\$525.00	86
SAM016-2	wall mount 2 7/8" dia. x 8'	\$150.00	97	SCL010-10	500' RAM safety cable system	\$607.00	86
SAM016-3	wall mount 2 7/8" dia. x 10'	\$150.00	97	SCL010-S	RAM cable safety sleeve (slider) kit	\$178.00	86
SAM017-1	wall mount 4 1/2" dia. x 6'	\$152.00	97	SCL013-1	25' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$390.00	87
SAM017-2	wall mount 4 1/2" dia. x 8'	\$184.00	97	SCL013-2	50' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$399.00	87
SAM018-1	thru-bolt anchor kit	\$55.00	97	SCL013-3	100' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$493.00	87
SAM018-2	rawl mechanical anchor	\$12.00	98	SCL013-4	150' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$587.00	87
SAM018-3	HVAM epoxy anchor	\$52.00	98	SCL013-5	200' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$681.00	87
SAM018-4	block wall adhesive kit	\$117.00	98	SCL013-6	250' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$775.00	87
SAM018-5	block & brick adhesive kit	\$125.00	98	SCL013-7	300' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$870.00	87
SAM019-1	6' non-penetrating roof frame	\$397.00	95	SCL013-8	350' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$964.00	87
SAM019-2	10' non-penetrating roof frame	\$411.00	95	SCL013-9	400' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$1,058.00	87
SAM019-3	frame ballast tie-down kit	\$66.00	95	SCL013-10	500' RAM safety cable system - step bolt 1 1/2" - 4 1/2" dia leg	\$1,246.00	87
SAM021-1	5' wireless pipe frame c/w (3) 2 3/8" x 8' antenna pipes	\$360.00	71	SCL014-1	25' RAM safety cable system - step bolt 4" - 8" 60° leg	\$525.00	88
SAM023-1	light non-penetrating tripod mount - 2 3/8" OD x 6' mast	\$229.00	94	SCL014-2	50' RAM safety cable system - step bolt 4" - 8" 60° leg	\$534.00	88
SAM023-2	light non-penetrating tripod mount - 2 3/8" OD x 8' mast	\$236.00	94	SCL014-3	100' RAM safety cable system - step bolt 4" - 8" 60° leg	\$644.00	88
SAM023-3	light non-penetrating tripod mount - 2 3/8" OD x 10' mast	\$240.00	94	SCL014-4	150' RAM safety cable system - step bolt 4" - 8" 60° leg	\$755.00	88
SAM024-1	12' sector frame c/w 3 antenna pipes - 1 1/2" - 4 1/2" rnd legs or 60° leg 2 1/2 to 4"	\$739.00	71	SCL014-5	200' RAM safety cable system - step bolt 4" - 8" 60° leg	\$865.00	88
SAM024-2	12' sector frame c/w 4 antenna pipes - 1 1/2" - 4 1/2" rnd legs or 60° leg 2 1/2 to 4"	\$814.00	71	SCL014-6	250' RAM safety cable system - step bolt 4" - 8" 60° leg	\$975.00	88
SCL001-1	20' RAM safety rail c/w hardware	\$105.00	84	SCL014-7	300' RAM safety cable system - step bolt 4" - 8" 60° leg	\$1,086.00	88
SCL001-2	10' RAM safety rail c/w hardware	\$52.00	84	SCL014-8	350' RAM safety cable system - step bolt 4" - 8" 60° leg	\$1,196.00	88
SCL001-3	20' RAM safety rail c/w hardware top	\$105.00	84	SCL014-9	400' RAM safety cable system - step bolt 4" - 8" 60° leg	\$1,307.00	88
SCL001-4	10' RAM safety rail c/w hardware top	\$52.70	84	SCL014-10	500' RAM safety cable system - step bolt 4" - 8" 60° leg	\$1,528.00	88
SCL001-5	additional RAM clamp kits	\$1.90	84	SCL015-1	25' RAM safety cable system - step bolt Monopole	\$417.00	88
SCL002-1	safety rail stand-off	\$75.00	84	SCL015-2	50' RAM safety cable system - step bolt Monopole	\$427.00	88
SCL002-2	stand-off 2 lev. 2.88" OD (73 mm OD) rnd boom	\$79.00	84				
SCL002-3	stand-off 3 lev. 2.88" OD (73 mm OD) rnd boom	\$93.00	84				
SCL002-4	stand-off 2 lev. 4.5" OD (114 mm OD) rnd boom	\$82.00	84				
SCL002-5	stand-off 3 lev. 4.5" OD (73 mm OD) rnd boom	\$98.00	84				
SCL002-6	stand-off 2 lev. 3 1/2" to 4" OD (89-102 mm) sq boom	\$92.00	84				

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SCL015-3	100' RAM safety cable system - step bolt Monopole	\$524.00	88	SLT001-2	TJB mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V leg	\$23.00	91
SCL015-4	150' RAM safety cable system - step bolt Monopole	\$622.00	88	SLT001-3	TJB mnt kit 6 1/8" to 8" rnd, 8" 60° V leg	\$26.00	91
SCL015-5	200' RAM safety cable system - step bolt Monopole	\$720.00	88	SLT002-1	TJB mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V leg	\$40.00	91
SCL016-1	10' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$483.00	89	SLT002-2	TJB mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V leg	\$44.00	91
SCL016-2	20' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$485.00	89	SLT002-3	TJB mnt kit 6 1/8" to 8" rnd, 8" 60° V leg	\$50.00	91
SCL016-3	30' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$515.00	89	SLT003-1	dbl obstr mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V leg	\$83.00	91
SCL016-4	40' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$520.00	89	SLT003-2	dbl obstr mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V leg	\$92.00	91
SCL016-5	50' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$523.00	89	SLT003-3	dbl obstr mnt kit 6 1/8" to 8" rnd, 8" 60° V leg	\$103.00	91
SCL016-6	60' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$553.00	89	SLT004-1	top becn mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V leg	\$224.00	92
SCL016-7	70' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$557.00	89	SLT004-2	top becn mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V leg	\$207.00	92
SCL016-8	80' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$587.00	89	SLT004-3	top becn mnt kit 6 1/8" to 8" rnd, 8" 60° V leg	\$208.00	92
SCL016-9	90' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$593.00	89	SLT005-1	dbl obstr mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V leg	\$104.00	92
SCL016-10	100' RAM safety cable system - step bolt Wooden Pole 10"-16" dia	\$596.00	89	SLT005-2	dbl obstr mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V leg	\$116.00	92
SGD001	ice guard for 4' antennas	\$749.00	76	SLT005-3	dbl obstr mnt kit 6 1/8" to 8" rnd, 8" 60° V leg	\$130.00	92
SGD002	ice guard for 6' antennas	\$1,214.00	76	SLT006-1	dbl becn mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V leg	\$304.00	92
SGD003	ice guard for 8' & 10' antennas	\$1,665.00	76	SLT006-2	dbl becn mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V leg	\$309.00	92
SGD004	ice guard for 12' antennas	\$2,080.00	76	SLT006-3	dbl becn mnt kit 6 1/8" to 8" rnd, 8" 60° V leg	\$326.00	92
SGD005	ice guard for 2' antennas	\$324.00	76	SLT007-1	photocell mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V leg	\$21.00	92
SGR002	bare copper ground buss bar kit	\$81.00	102	SLT007-2	photocell mnt kit 3 1/2" to 6" rnd, 3 1/2" to 6" 60° V leg	\$23.00	92
SGR003	tinned copper grnd buss bar kit	\$83.00	102	SLT007-3	photocell mnt kit 6 1/8" to 8" rnd, 8" 60° V leg	\$26.00	92
SG-UGIP	plastic inspection tube & cover (10 lbs)		105	SMT001-1	round leg clamp mount for 1 1/2" to 3" legs	\$133.00	61
SG-UH10	model UH-10 (rod only, 55 lbs)		105	SMT001-2	round leg clamp mount for 3 1/16" to 4 1/2" legs	\$131.00	61
SG-UH10S	system (includes rod, backfill & c. cover box)		105	SMT001-3	round leg clamp mount for 4 5/8" to 6" legs	\$178.00	61
SG-UV10	model UV-10 (rod only, 45 lbs)		105	SMT001-4	round leg clamp mount for 6 1/8" to 7 1/2" legs	\$186.00	61
SG-UV10S	system (includes rod, backfill & c. cover box)		105	SMT002-1	pipe mount 2 3/8" OD x 6'	\$89.00	63
SGY001-1	5/16" guy & EHS strand hardware assembly	\$57.00	126	SMT002-2	pipe mount 2 3/8" OD x 8'	\$116.00	63
SGY001-2	3/8" guy & EHS strand hardware assembly	\$70.00	126	SMT002-3	pipe mount 2 3/8" OD x 10'	\$146.00	63
SGY001-3	7/16" guy & EHS strand hardware assembly	\$143.00	126	SMT002-4	pipe mount 2 7/8" OD x 6'	\$130.00	63
SGY001-4	1/2" guy & EHS strand hardware assembly	\$154.00	126	SMT002-5	pipe mount 2 7/8" OD x 8'	\$145.00	63
SGY001-5	9/16" guy & EHS strand hardware assembly	\$210.00	126	SMT002-6	pipe mount 2 7/8" OD x 10'	\$160.00	63
SGY001-6	5/8" guy & EHS strand hardware assembly	\$239.00	126	SMT002-7	pipe mount 4 1/2" OD x 6'	\$128.00	63
SGY002-1	3/4" EHS strand hardware assembly	\$768.00	126	SMT002-8	pipe mount 4 1/2" OD x 8'	\$138.00	63
SGY002-2	7/8" EHS strand hardware assembly	\$1,021.00	126	SMT002-9	pipe mount 4 1/2" OD x 10'	\$155.00	63
SGY002-3	1" EHS strand hardware assembly	call	126	SMT003-1	corner angle leg clamp 2 1/2" to 4" 60° legs	\$123.00	62
SGY003-1	1/2" bridge strand hardware assembly	\$241.00	126	SMT003-2	corner angle leg clamp 5" to 6" 60° legs	\$143.00	62
SGY003-2	9/16" bridge strand hardware assembly	\$245.00	126	SMT003-3	corner angle leg clamp 8" 60° legs	\$170.00	62
SGY003-3	5/8" bridge strand hardware assembly	\$312.00	126	SMT004-1	corner tapered angle leg clamp 2 1/2" to 4" 60° legs	\$130.00	62
SGY003-4	11/16" bridge strand hardware assembly	\$529.00	126	SMT004-2	corner tapered angle leg clamp 5" to 6" 60° legs	\$152.00	62
SGY003-5	3/4" bridge strand hardware assembly	\$750.00	126				
SGY003-6	13/16" bridge strand hardware assembly	\$856.00	126				
SGY003-7	7/8" bridge strand hardware assembly	\$1,021.00	126				
SLT001-1	TJB mnt kit 1 1/4" to 3" rnd, 2 1/2" to 3" 60° V leg	\$21.00	91				





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Item #	Description	Price	Page	Item #	Description	Price	Page
SMT004-3	corner tapered angle leg clamp 8" 60° legs	\$186.00	62	SMT014-8	2 7/8" OD x 6' vert pipe mount for 4 1/2" OD horiz pipe	\$128.00	65
SMT005-1	round tapered leg clamp mount for 1 1/2" to 3" legs	\$145.00	61	SMT014-9	2 7/8" OD x 8' vert pipe mount for 2 7/8" OD horiz pipe	\$134.00	65
SMT005-2	round tapered leg clamp mount for 3 1/16" to 4 1/2" legs	\$143.00	61	SMT014-10	2 7/8" OD x 8' vert pipe mount for 4 1/2" OD horiz pipe	\$137.00	65
SMT005-3	round tapered leg clamp mount for 4 5/8" to 6" legs	\$200.00	61	SMT014-11	2 7/8" OD x 10' vert pipe mount for 2 7/8" OD horiz pipe	\$139.00	65
SMT005-4	round tapered leg clamp mount for 6 1/8" to 7 1/2" legs	\$317.00	61	SMT014-12	2 7/8" OD x 10' vert pipe mount for 4 1/2" OD horiz pipe	\$142.00	65
SMT006	combination clamp with 1 5/8" to 3" pipe	\$80.00	59	SMT014-13	4 1/2" OD x 6' vert pipe mount for 4 1/2" OD horiz pipe	\$141.00	65
SMT007	angle leg pipe clamp 2" to 4" legs	\$66.00	60	SMT014-14	4 1/2" OD x 8' vert pipe mount for 4 1/2" OD horiz pipe	\$157.00	65
SMT008-1	horizontal pipe angle clamp 2" to 4" legs	\$91.00	60	SMT014-15	4 1/2" OD x 10' vert pipe mount for 4 1/2" OD horiz pipe	\$181.00	65
SMT008-2	parallel angle clamp 2" to 4" legs	\$82.00	60	SMT015-1	12" to 24" (305-610 mm) dia. monopole collar mounting clamp	\$818.00	50
SMT009-1	horizontal pipe angle clamp 5" to 8" legs	\$95.00	60	SMT015-2	24" to 36" (610-915 mm) dia. monopole collar mounting clamp	\$852.00	50
SMT009-2	parallel angle clamp 5" to 8" legs	\$90.00	60	SMT015-3	36" to 60" (915-15,255 mm) dia. monopole collar mounting clamp	\$1,035.00	50
SMT010-1	parallel pipe to pipe clamp with 1 5/8" to 3" OD	\$44.00	58	SMT016-1	2-level pinwheel single pipe	\$1,299.00	52
SMT010-2	parallel pipe to pipe clamp for 4 1/2" to 4 1/2" OD	\$46.00	58	SMT016-2	3-level pinwheel single pipe	\$1,939.00	52
SMT011	perpendicular pipe to pipe clamp for 1 1/2" to 3" OD	\$56.00	58	SMT016-3	2-level pinwheel double pipe	\$1,833.00	52
SMT012	parallel standoff pipe to pipe clamp for 1 1/2" to 3" OD	\$51.00	58	SMT016-4	3-level pinwheel double pipe	\$2,699.00	52
SMT012-1	side strut bracket rnd leg 1 1/2" to 4 1/2", 60° legs 2 1/2" to 4"	\$122.00	75	SMT018-1	round leg 1 1/2" to 3" dia. 2-level t-boom pinwheel	\$2,153.00	54
SMT012-2	side strut bracket rnd leg 4 5/8" to 6", 60° legs 5" to 6"	\$123.00	75	SMT018-2	round leg 1 1/2" to 3" dia. 3-level t-boom pinwheel	\$3,222.00	54
SMT012-3	side strut bracket rnd leg 6 1/8" to 7 1/2", 60° legs 8"	\$156.00	75	SMT018-1B	2-level T-boom pinwheel - 15' boom round leg 2" to 3" dia	\$2,360.00	54
SMT013-1	1 7/8" (48 mm) to 1 7/8" (48 mm) pipe crossover plate pipe clamp	\$36.00	59	SMT018-1C	2-level T-boom pinwheel - 13' boom round leg 2" to 3" dia	\$1,987.00	54
SMT013-2	1 7/8" (48 mm) to 2 3/8" (60 mm) pipe crossover plate pipe clamp	\$25.00	59	SMT018-1D	2-level T-boom pinwheel - 11' boom round leg 2" to 3" dia	\$1,932.00	54
SMT013-3	1 7/8" (48 mm) to 2 7/8" (73 mm) pipe crossover plate pipe clamp	\$27.00	59	SMT018-1E	2-level T-boom pinwheel - 10' boom round leg 2" to 3" dia	\$1,861.00	54
SMT013-4	2 3/8" (60 mm) to 2 3/8" (60 mm) pipe crossover plate pipe clamp	\$28.00	59	SMT018-1F	2-level T-boom pinwheel - 8' boom round leg 2" to 3" dia	\$1,772.00	54
SMT013-5	2 3/8" (60 mm) to 2 7/8" (73 mm) pipe crossover plate pipe clamp	\$27.00	59	SMT018-1G	2-level T-boom pinwheel - 16' boom round leg 1 1/4" to 2" dia	\$2,223.00	54
SMT013-6	2 3/8" (60 mm) to 3 1/2" (89 mm) pipe crossover plate pipe clamp	\$31.00	59	SMT018-1H	2-level T-boom pinwheel - 15' boom round leg 1 1/4" to 2" dia	\$2,440.00	54
SMT013-7	2 7/8" (73 mm) to 2 7/8" (73 mm) pipe crossover plate pipe clamp	\$30.00	59	SMT018-1J	2-level T-boom pinwheel - 13' boom round leg 1 1/4" to 2" dia	\$2,067.00	54
SMT013-8	2 7/8" (73 mm) to 4 1/2" (114 mm) pipe crossover plate pipe clamp	\$41.00	59	SMT018-1K	2-level T-boom pinwheel - 11' boom round leg 1 1/4" to 2" dia	\$2,012.00	54
SMT013-9	3 1/2" (89 mm) to 3 1/2" (89 mm) pipe crossover plate pipe clamp	\$45.00	59	SMT018-1L	2-level T-boom pinwheel - 10' boom round leg 1 1/4" to 2" dia	\$1,941.00	54
SMT013-10	3 1/2" (89 mm) to 4 1/2" (114 mm) pipe crossover plate pipe clamp	\$46.00	59	SMT018-1M	2-level T-boom pinwheel - 8' boom round leg 1 1/4" to 2" dia	\$1,852.00	54
SMT013-11	4 1/2" (114 mm) to 4 1/2" (114 mm) pipe crossover plate pipe clamp	\$37.00	59	SMT018-2B	3-level T-boom pinwheel - 15' boom round leg 2" to 3" dia	\$3,539.00	54
SMT014-1	2 3/8" OD x 6' vert pipe mount for 2 7/8" OD horiz pipe	\$97.00	65	SMT018-2C	3-level T-boom pinwheel - 13' boom round leg 2" to 3" dia	\$2,980.00	54
SMT014-2	2 3/8" OD x 6' vert pipe mount for 4 1/2" OD horiz pipe	\$112.00	65	SMT018-2D	3-level T-boom pinwheel - 11' boom round leg 2" to 3" dia	\$2,898.00	54
SMT014-3	2 3/8" OD x 8' vert pipe mount for 2 7/8" OD horiz pipe	\$107.00	65	SMT018-2E	3-level T-boom pinwheel - 10' boom round leg 2" to 3" dia	\$2,791.00	55
SMT014-4	2 3/8" OD x 8' vert pipe mount for 4 1/2" OD horiz pipe	\$112.00	65	SMT018-2F	3-level T-boom pinwheel - 8' boom round leg 2" to 3" dia	\$2,657.00	55
SMT014-5	2 3/8" OD x 10' vert pipe mount for 2 7/8" OD horiz pipe	\$114.00	65	SMT018-2G	3-level T-boom pinwheel - 16' boom round leg 1 1/4" to 2" dia	\$3,332.00	55
SMT014-6	2 3/8" OD x 10' vert pipe mount for 4 1/2" OD horiz pipe	\$118.00	65	SMT018-2H	3-level T-boom pinwheel - 15' boom round leg 1 1/4" to 2" dia	\$3,659.00	55
SMT014-7	2 7/8" OD x 6' vert pipe mount for 2 7/8" OD horiz pipe	\$120.00	65				



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Item #	Description	Price	Page	Item #	Description	Price	Page
SMT018-2J	3-level T-boom pinwheel - 13' boom round leg 1 1/4" to 2" dia	\$3,099.00	55	SMT028-2J	3-level T-boom pinwheel - 11' boom 5" - 6" 60° Leg	\$3,130.00	57
SMT018-2K	3-level T-boom pinwheel - 11' boom round leg 1 1/4" to 2" dia	\$3,017.00	55	SMT028-2K	3-level T-boom pinwheel - 13' boom 5" - 6" 60° Leg	\$3,212.00	57
SMT018-2L	3-level T-boom pinwheel - 10' boom round leg 1 1/4" to 2" dia	\$2,910.00	55	SMT028-2L	3-level T-boom pinwheel - 15' boom 5" - 6" 60° Leg	\$3,772.00	57
SMT018-2M	3-level T-boom pinwheel - 8' boom round leg 1 1/4" to 2" dia	\$2,778.00	55	SMT028-2M	3-level T-boom pinwheel - 16' boom 5" - 6" 60° Leg	\$3,446.00	57
SMT022-1	2-level pinwheel double pipe	\$1,553.00	52	SMT028-2P	3-level T-boom pinwheel - 18' boom 5" - 6" 60° Leg	\$3,588.00	57
SMT022-2	corner mount 2 7/8" OD x 5'	\$62.00	52	SMT028-2R	3-level T-boom pinwheel - 20' boom 5" - 6" 60° Leg	\$3,867.00	57
SMT023-1	low-profile platform 15' diversity	\$2,628.00	51	SMT028-3	2-level T-boom pinwheel - 10' boom 8" 60° Leg	\$2,128.00	56
SMT023-2	low-profile platform 12' diversity	\$2,246.00	51	SMT028-3B	2-level T-boom pinwheel - 11' boom 8" 60° Leg	\$2,198.00	56
SMT024-1	wood pole pcs mount	\$374.00	99	SMT028-3C	2-level T-boom pinwheel - 13' boom 8" 60° Leg	\$2,253.00	56
SMT025-1	standard mount 2 7/8" OD x 5' to HSS 3" x 3" sq	\$50.00	51	SMT028-3D	2-level T-boom pinwheel - 15' boom 8" 60° Leg	\$2,626.00	56
SMT025-2	corner mount 2 7/8" OD x 5'	\$24.00	51	SMT028-3E	2-level T-boom pinwheel - 16' boom 8" 60° Leg	\$2,408.00	56
SMT026-1	3' stand-off for 3 antennas	\$479.00	53	SMT028-3F	2-level T-boom pinwheel - 18' boom 8" 60° Leg	\$2,504.00	56
SMT026-2	5' stand-off for 3 antennas	\$495.00	53	SMT028-3G	2-level T-boom pinwheel - 20' boom 8" 60° Leg	\$2,690.00	56
SMT026-3	6 1/2' stand-off for 3 antennas	\$512.00	53	SMT028-3H	3-level T-boom pinwheel - 10' boom 8" 60° Leg	\$3,182.00	57
SMT027-1	2-level pinwheel double pipe	\$2,102.00	52	SMT028-3J	3-level T-boom pinwheel - 11' boom 8" 60° Leg	\$3,288.00	57
SMT027-2	3-level pinwheel double pipe	\$3,137.00	52	SMT028-3K	3-level T-boom pinwheel - 13' boom 8" 60° Leg	\$3,371.00	57
SMT028-1	2-level T-boom pinwheel - 10' boom 2 1/2" - 4" 60° Leg	\$1,883.00	55	SMT028-3L	3-level T-boom pinwheel - 15' boom 8" 60° Leg	\$3,930.00	57
SMT028-1B	2-level T-boom pinwheel - 11' boom 2 1/2" - 4" 60° Leg	\$1,954.00	55	SMT028-3M	3-level T-boom pinwheel - 16' boom 8" 60° Leg	\$3,604.00	57
SMT028-1C	2-level T-boom pinwheel - 13' boom 2 1/2" - 4" 60° Leg	\$2,009.00	55	SMT028-3P	3-level T-boom pinwheel - 18' boom 8" 60° Leg	\$3,747.00	57
SMT028-1D	2-level T-boom pinwheel - 15' boom 2 1/2" - 4" 60° Leg	\$2,382.00	55	SMT028-3R	3-level T-boom pinwheel - 20' boom 8" 60° Leg	\$4,026.00	57
SMT028-1E	2-level T-boom pinwheel - 16' boom 2 1/2" - 4" 60° Leg	\$2,165.00	55	SST001-1	shelter stairs 1,000-lb capacity	\$587.00	116
SMT028-1F	2-level T-boom pinwheel - 18' boom 2 1/2" - 4" 60° Leg	\$2,259.00	55	STB001-D	standard Tx-line bridge 10-ft long (3.0 m), w/double channel	\$813.00	77
SMT028-1G	2-level T-boom pinwheel - 20' boom 2 1/2" - 4" 60° Leg	\$2,446.00	55	STB001-DE	standard embedded Tx-line bridge 10-ft long (3.0 m), w/double channel	\$848.00	78
SMT028-1H	2-level T-boom pinwheel - 10' boom 5" - 6" 60° Leg	\$2,022.00	55	STB001-S	standard Tx-line bridge 10-ft long (3.0 m), w/single channel	\$564.00	77
SMT028-1J	2-level T-boom pinwheel - 11' boom 5" - 6" 60° Leg	\$2,093.00	56	STB001-SE	standard embedded Tx-line bridge 10-ft long (3.0 m), w/single channel	\$539.00	78
SMT028-1K	2-level T-boom pinwheel - 13' boom 5" - 6" 60° Leg	\$2,147.00	56	STB001-T	trapeze Tx-line bridge 10-ft long (3.0 m), posts c/w base plate	\$1,015.00	79
SMT028-1L	2-level T-boom pinwheel - 15' boom 5" - 6" 60° Leg	\$2,520.00	56	STB001-TE	trapeze Tx-line bridge 10-ft long (3.0 m), posts embedded	\$993.00	79
SMT028-1M	2-level T-boom pinwheel - 16' boom 5" - 6" 60° Leg	\$2,303.00	56	STB002-D	standard Tx-line bridge 20-ft long (6.1 m), w/double channel	\$1,397.00	77
SMT028-1P	2-level T-boom pinwheel - 18' boom 5" - 6" 60° Leg	\$2,398.00	56	STB002-DE	standard embedded Tx-line bridge 20-ft long (6.1 m), w/double channel	\$980.00	78
SMT028-1R	2-level T-boom pinwheel - 20' boom 5" - 6" 60° Leg	\$2,584.00	56	STB002-S	standard Tx-line bridge 20-ft long (6.1 m), w/single channel	\$950.00	77
SMT028-2	3-level T-boom pinwheel - 10' boom 2 1/2" - 4" 60° Leg	\$2,816.00	56	STB002-SE	standard embedded Tx-line bridge 20-ft long (6.1 m), w/single channel	\$925.00	78
SMT028-2B	3-level T-boom pinwheel - 11' boom 2 1/2" - 4" 60° Leg	\$2,922.00	56	STB002-T	trapeze Tx-line bridge 20-ft long (6.1 m), posts c/w base plate	\$1,761.00	79
SMT028-2C	3-level T-boom pinwheel - 13' boom 2 1/2" - 4" 60° Leg	\$3,004.00	56	STB002-TE	trapeze Tx-line bridge 20-ft long (6.1 m), posts embedded	\$1,732.00	79
SMT028-2D	3-level T-boom pinwheel - 15' boom 2 1/2" - 4" 60° Leg	\$3,564.00	56	STB003	hanging Tx-line bridge (2' 4" x 4')	\$574.00	80
SMT028-2E	3-level T-boom pinwheel - 16' boom 2 1/2" - 4" 60° Leg	\$3,238.00	56				
SMT028-2F	3-level T-boom pinwheel - 18' boom 2 1/2" - 4" 60° Leg	\$3,380.00	56				
SMT028-2G	3-level T-boom pinwheel - 20' boom 2 1/2" - 4" 60° Leg	\$3,660.00	56				
SMT028-2H	3-level T-boom pinwheel - 10' boom 5" - 6" 60° Leg	\$3,024.00	57				



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STB004	low 24"-wide, 2-post 10-ft (3 m) trapeze Tx-line bridge	<b>\$942.00</b>	81
STB005	low 24"-wide, 4-post 10-ft (3 m) trapeze Tx-line bridge	<b>\$1,249.00</b>	81
STB005-2	11' tall 4-post 10' (3m) trapeze Tx-line bridge	<b>\$1,398.00</b>	81
STB005-3	4' tall 4-post 20' (6m) trapeze Tx-line bridge	<b>\$1,640.00</b>	81
STB005-4	11' tall 4-post 20' (6m) trapeze Tx-line bridge	<b>\$1,905.00</b>	81
STB005-5	4' tall 4-embedded post 10' (3m) trapeze Tx-line bridge	<b>\$1,062.00</b>	82
STB005-6	11' tall 4-embedded post 10' (3m) trapeze Tx-line bridge	<b>\$1,260.00</b>	82
STB005-7	4' tall 4-embedded post 20' (6m) trapeze Tx-line bridge	<b>\$1,570.00</b>	82
STB005-8	11' tall 4-embedded post 20' (6m) trapeze Tx-line bridge	<b>\$1,768.00</b>	82
STB006-A	5-line Tx-line bridge expansion bracket	<b>\$6.60</b>	83
STB006-B	10-line Tx-line bridge expansion bracket	<b>\$16.00</b>	83
STB006-C	single bridge 2' wide cover plate	<b>\$73.00</b>	83
STB006-D	single bridge 3' wide cover plate	<b>\$78.00</b>	83
STB006-E	double bridge 4' wide cover plate	<b>\$139.00</b>	83
STB006-F	Tx-line bridge splice connection kit	<b>\$15.00</b>	83
STB008-1	4-line rooftop Tx-line bridge c/w pvc sleepers	<b>\$160.00</b>	100
STB008-2	8-line rooftop Tx-line bridge c/w pvc sleepers	<b>\$191.00</b>	100
STB008-3	12-line rooftop Tx-line bridge c/w pvc sleeper	<b>\$254.00</b>	100
STB008-4	4 Tx-line splice	<b>\$10.00</b>	100
STB008-5	8 Tx-line splice	<b>\$12.00</b>	100
STB008-6	12 Tx-line splice	<b>\$16.00</b>	100
STB008-7	4-line adjustable splice	<b>\$15.00</b>	100
STB008-8	8-line adjustable splice	<b>\$23.00</b>	100
STB008-9	12-line adjustable splice	<b>\$60.00</b>	100
STB009-1	6" cable tray c/w cover	<b>\$129.00</b>	101
STB009-2	12" cable tray c/w cover	<b>\$173.00</b>	101
STB009-3	6" adjustable cover	<b>\$14.00</b>	101
STB009-4	12" adjustable cover	<b>\$24.00</b>	101
STB010-1	3' wide 6' tall 4-post 10' (3m) trapeze Tx-line bridge	<b>\$1,335.00</b>	82
STB013-1	18" x 8' tx-line cable tray c/w cover	<b>\$449.00</b>	101
STX005-1H	18 Tx-line double rnd leg 1 1/2" to 4 1/2", 60° legs 2 1/2" to 4", 90° legs 2" to 3"	<b>\$41.00</b>	150
STX005-1HS	12 Tx-line single rnd leg 1 1/2" to 4 1/2", 60° legs 2 1/2" to 4", 90° legs 2" to 3"	<b>\$35.00</b>	150
STX005-1L	16 Tx-line double rnd leg 1 1/2" to 4 1/2", 60° legs 2 1/2" to 4", 90° legs 2" to 3"	<b>\$35.00</b>	150
STX005-1LS	10 Tx-line single rnd leg 1 1/2" to 4 1/2", 60° legs 2 1/2" to 4", 90° legs 2" to 3"	<b>\$29.00</b>	150
STX005-2H	18 Tx-line double rnd leg 4 5/8" to 6", 60° legs 5" to 6", 90° legs 3" to 4"	<b>\$44.00</b>	150
STX005-2HS	12 Tx-line single rnd leg 4 5/8" to 6", 60° legs 5" to 6", 90° legs 3" to 4"	<b>\$38.00</b>	150
STX005-2L	16 Tx-line double rnd leg 4 5/8" to 6", 60° legs 5" to 6", 90° legs 3" to 4"	<b>\$35.00</b>	150

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STX005-2LS	10 Tx-line single rnd leg 4 5/8" to 6", 60° legs 5" to 6", 90° legs 3" to 4"	<b>\$29.00</b>	150
STX005-3H	18 Tx-line double rnd leg 6 1/8" to 7 1/2", 60° legs 8", 90° legs 4" to 5"	<b>\$46.00</b>	150
STX005-3HS	12 Tx-line single rnd leg 6 1/8" to 7 1/2", 60° legs 8", 90° legs 4" to 5"	<b>\$40.00</b>	150
STX005-3L	16 Tx-line double rnd leg 6 1/8" to 7 1/2", 60° legs 8", 90° legs 4" to 5"	<b>\$36.00</b>	150
STX005-3LS	10 Tx-line single rnd leg 6 1/8" to 7 1/2", 60° legs 8", 90° legs 4" to 5"	<b>\$30.00</b>	150
STX005-4	wing Tx-line bracket 6-line expansion bracket	<b>\$5.00</b>	151
STX005-5	wing Tx-line bracket 6-line expansion	<b>\$10.00</b>	151
STX006-1	round leg 6 Tx-line support bar 1 1/2" to 3" dia. legs	<b>\$16.00</b>	151
STX007-1	11-run Tx-line 20' support ladder kit	<b>\$169.00</b>	152
STX007-2	15-run Tx-line 20' support ladder kit	<b>\$175.00</b>	152
STX007-3	11-run Tx-line 10' support ladder kit	<b>\$132.00</b>	152
STX007-4	15-run Tx-line 10' support ladder kit	<b>\$138.00</b>	152
STX007-5	Tx-line support ladder clamp kit	<b>\$14.00</b>	152

**RADIAN**



# terms and conditions of sale

**General** – In accordance with the usage of trade, we conclusively presume by the absence of any written objection and by the acceptance of part or all of the material ordered that:

- All proposals, negotiations, and representations regarding a transaction that are made prior to the date of this document, if any, are hereby merged into this document.
- All delivery prices are FOB our point of manufacture, unless otherwise specified.
- The agreement and language herein shall be construed and enforced in accordance with the laws of the Province of Ontario and the federal laws of Canada, applicable therein as of the date of e-mail confirmation of your order.
- A finance charge, at the monthly rate of 2%, will be assessed on past due invoices where allowed by applicable law.

**Delay** – We shall be excused for any delay in performance caused by acts of God, war, riot, embargoes, acts of civil or military authorities, fires, floods, accidents, quarantine restrictions, mail conditions, strikes, differences with workers, delays in transportation, shortages of cars, fuel, labor or materials or any other circumstances or causes beyond the control of our reasonable conduct of business.

**Title and Risk of Loss** – Full risk of loss, including transportation delays and losses, shall pass to you upon delivery of products to the FOB point. However, we retain title, for security purposes only, if all products are not paid in full in cash. In the event that you default in payments hereunder, we, at our option, may repossess all unpaid products and charge you with any deficiency.

**Terms** – Terms are net 30 days from invoice date on approved credit.

**Credit Approval** – Shipment, deliveries, and performance of work shall at all times be at the approval of your credit. We may at any time decline to make any shipment or delivery, or to perform any work, except on receipt of payment or security, or upon terms and conditions satisfactory to us.

**Taxes** – When we are required to collect or pay taxes under any existing or future law, the taxes shall be for your account, and you will, upon demand, make prompt payment of the amount thereof to us. Applicable taxes may be in regard to the sale, purchase, delivery, storage, processing, use or consumption of any products covered herein, including taxes based on the receipts from the sale thereof. Taxes are not included in any published or quoted price shown, unless specifically identified as such.

**Warranty** – All products are warranted to be free of defects in material and workmanship. The warranty is effective for two years, commencing on the date of shipment.

**Buyer's Remedies** – If the material furnished to you should fail, whether due to our negligent acts or omissions, to nonconformity, or otherwise, with these terms and conditions, or to any expressed or implied warranty, we shall replace such failed products at the original point of delivery. Instructions will be furnished to you for the disposition of the failed products, and any transportation charges involved in the disposition shall be to our account.

YOUR EXCLUSIVE AND SOLE REMEDY IN REGARD TO HAVING RECEIVED FAILED PRODUCTS, WHETHER DUE TO OUR NEGLIGENT ACTS OR OMISSIONS, TO NONCONFORMITY, OR OTHERWISE, WITH THESE TERMS AND CONDITIONS, OR TO ANY EXPRESSED OR IMPLIED WARRANTY SHALL BE TO OBTAIN REPLACEMENT AS SPECIFIED ABOVE. WE SHALL NOT IN ANY EVENT BE LIABLE FOR THE COST OF ANY LABOR EXPENDED IN ANY SUCH PRODUCTS, OR FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES DUE TO THE PRODUCT'S

NONCONFORMITY WITH THESE TERMS AND CONDITIONS OR TO ANY EXPRESSED OR IMPLIED WARRANTY.

**Cancellation** – Orders accepted by us are non-cancellable by you unless agreed to in writing by us. If you provide a written request to cancel an entire order, or any portion thereof, and we agree in writing to such request, you will then be responsible for a reasonable fee reflecting the non-recoverable time and material costs, with reasonable profit, expended by us prior to cancellation. In no event shall this fee be less than 25% of the price of the materials or services cancelled.

**Packaging for Shipment** – The pricing for our products includes packing for standard ground domestic shipments, such as motor freight or package carriers. When special packaging is required for other means of shipment, such as for air shipment, ocean freight, etc., additional charges will apply and will be added to the order. Pricing for such special packaging will be furnished to you upon request.

**Freight** – Freight prices, if shown, are estimated for the stated mode of transportation and are based on tariffs and rates in effect at the time of the quotation. Freight charges are to your account. Point of delivery of all products is defined as the nearest dock or terminal used or arranged for by the appointed carrier, and that which is nearest to the construction site(s). Handling and further transportation from the defined point of delivery will be your responsibility unless specifically included in the quotation.

**Customer-Specified Shipping Instructions and Freight Terms** – We shall comply with the customer-specified shipping instructions and freight terms, provided they are stated in the written purchase order. On verbal purchase orders, we shall comply with the customer-specified shipping instructions and freight terms. However, in the event a confirming purchase order with different shipping instructions or freight terms is received after the order has shipped, the instructions and terms in the verbal purchase order will control. Written and verbal purchase orders that specify the destination, without specifying routing instructions and/or freight terms, will be shipped by a carrier and with freight terms (prepaid, collect, COD, etc.) of our choice.

Under no circumstances shall we be responsible or back-charged for the loss of customer freight advantages due to routing instructions and/or freight terms.

## Return of Material

- Advance authorization must be obtained and the returned products accompanied by a Return Authorization (RA) number.
- When authorized, the products must be returned within 90 days after the shipment date, in the original package, if any, and otherwise be in new condition. Products are to be returned with the freight charges prepaid.
- When the above conditions are satisfied and the products are accepted by us, a credit will be issued for the products, less a 25% restock charge.

**Shortage and Damage Claims** – All claims of shortages and damage must be filed within seven days of receipt of material.

**Engineering Terms & Conditions** – All products shown in our catalog are intended to be used by personnel who are qualified, trained and experienced in the design and installation of communication structures and installations. A licensed professional engineer familiar with these structures must be consulted to perform thorough structural analysis prior to any installation. Please contact us if you wish to perform these types of analyses. Prior to installation, structures must be at least visually inspected for corrosion by personnel experienced in that field.

Prices and specifications are subject to change without notice.