

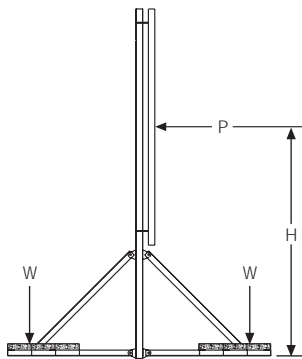
NON-PENETRATING BALLASTED TRIPODS

Non-penetrating Ballasted Tripods enable installation of Wireless Whip and Panel Antennas. These Tripods are secured to the roof using a concrete-block ballast (not included) that is placed on the Tripod's three 1'-4" wide x 8' long trays. An optional 99279 Ballast Tie-Down Kit (this page), is available to secure the Ballast. Alternatively, the Tripods can be anchored to a roof structure using $\frac{5}{8}$ " diameter Anchor Bolts.

The bottom of the Tripod is smooth to prevent roof damage. The B1564 Rubber Mat Kit (page 13.3), is an available option to further protect the roof's surface.

Design loading, per EIA-RS-222-C, is for 100 mph and $\frac{1}{2}$ " of radial ice.

Formula for determining Tripod ballast:



$$W = (0.138)(P)(H) - (83)$$

P = Wind load of antenna (pounds)

H = Height of antenna centerline above roof (feet)

W = Weight of ballast on each side of tripod (pounds)

Note:

Equation includes a 1.5 factor of safety for overturning
(W)(3) = Total ballast required

Example:

P = 135 lbs. at 100 mph (6' PCS Panel)

H = 6.5' antenna centerline above roof

$$W = (0.138)(135)(6.5) - (83) = 38 \text{ lbs.}$$

Total ballast required:

$$(W)(3) = (38)(3) = 114 \text{ lbs., } 38 \text{ lbs. evenly distributed on each side of the tripod.}$$

Note:

A nominal 4x8x16 solid concrete block (CMU) weighs 20-30 lbs. Verify weight with local supplier.

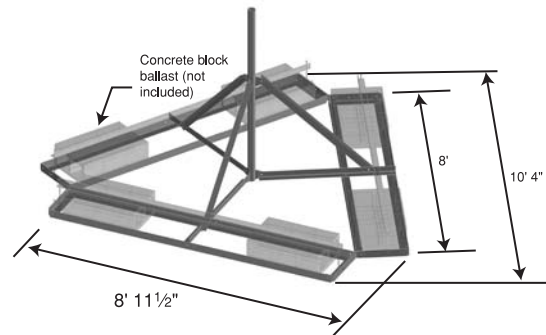
NON-PENETRATING BALLASTED TRIPOD

FOR WHIP ANTENNA

The 5' high Non-Penetrating Ballasted Tripod supports a Whip Antenna that mounts on the top 2' of the $2\frac{3}{8}$ " OD mast. Both a B1564 Rubber Mat Kit and a 99279 Ballast Tie-Down Kit (this page), are available options for this Tripod.

Maximum antenna loading is:

100 lb wind load and 1,200 ft-lb bending moment, or
200 lb wind load and 1,000 ft-lb bending moment.



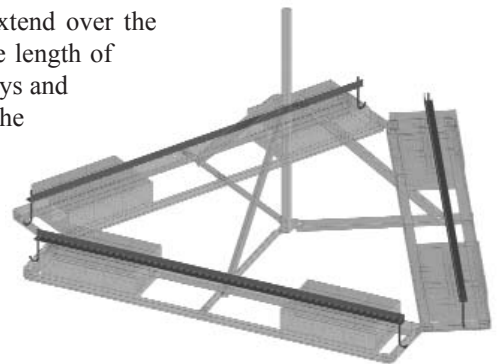
Product Number	Description	List Price
99280	Non-Penetrating Ballasted Tripod for whip antenna	\$375.00

BALLAST TIE-DOWN KIT

FOR NON-PENETRATING BALLASTED TRIPODS

Ballast Tie-Down Kit provides a means to secure concrete block ballast to the trays of Non-Penetrating Ballasted Tripods. The Kit will hold a single layer of solid blocks, or a single or double layer of hollow-core blocks.

The Kit is furnished with 2" x 2" angles that extend over the blocks for the length of the ballast trays and are held to the Tripod with $\frac{1}{2}$ " diameter x 9" long Hookbolts, provided with 7" long thread.



Product Number	Description	List Price
99279	Ballast Tie-Down Kit for Non-Penetrating Ballasted Tripods	\$105.00

ANTENNA SUPPORT STRUCTURES

ROOFTOP TRIPODS

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NON-PENETRATING BALLASTED TRIPOD

FOR PANEL ANTENNA

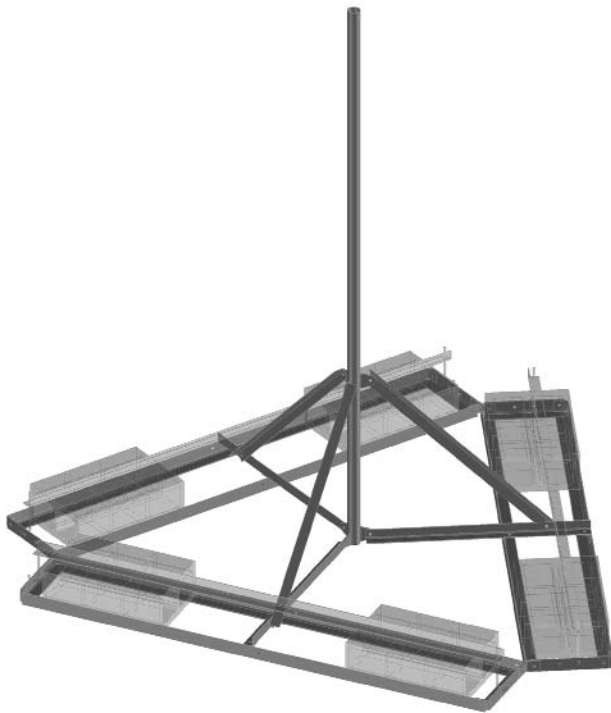
The 99281 Non-Penetrating Ballasted Tripods support a Panel Antenna that mounts on the top 6'-6" of the 2³/₈" OD pipe mast.

The 99289 Non-Penetrating Ballasted Tripod supports a Panel Antenna that mounts to the top 6'-11" of the 2³/₈" OD portion of the pipe mast weldment. The lower portion of the mast is 4¹/₂" OD.

Both a B1564 Rubber Mat Kit and a 99279 Ballast Tie-Down Kit (page 13.1) are available options for these Tripods.

Maximum antenna loading is:

200 lb wind load applied 1' below mast top.



Product Number	Description	List Price
99281	2 ³ / ₈ " OD x 9'-6" high	\$385.00
99289	2 ³ / ₈ " OD x 15' high	\$505.00

NON-PENETRATING BALLASTED TRIPOD

FOR PANEL OR BROADBAND ANTENNA

The 99278 Non-Penetrating Ballasted Tripods support a Panel or Broadband Antenna that mounts to the top 8'-6" of the 2⁷/₈" OD portion of the pipe mast weldment. The lower portion of the mast is 4¹/₂" OD and is supported and braced with double angles for extra stability.

The B2502 Non-Penetrating Ballasted Tripod supports a Panel or Broadband Antenna that mounts to the top 6'-6" of the 2⁷/₈" OD pipe mast.

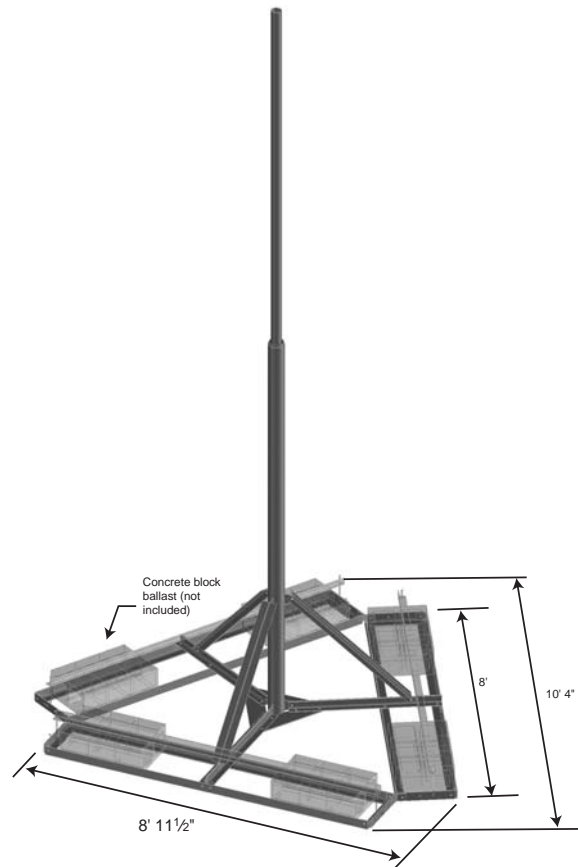
Both a B1564 Rubber Mat Kit and a 99279 Ballast Tie-Down Kit (page 13.1) are available options for these Tripods.

Maximum antenna loading for 99278 is:

300 lb wind load applied 1' below mast top.

Maximum antenna loading for B2502 is:

500 lb wind load applied 1' below mast top.



Product Number	Description	List Price
99278	2 ⁷ / ₈ " OD x 18' high	\$725.00
B2502	2 ⁷ / ₈ " OD x 9'-6" high	\$410.00

NON-PENETRATING BALLASTED TRIPOD

FOR MICROWAVE DISH & WIRELESS ANTENNAS

The Non-Penetrating Ballasted Tripod provides a 4½" OD pipe mast, 8' or 11' high. The mast is supported and braced with double angles for extra stability.

For microwave applications, the Tripod supports up to a 4' HP dish Antenna.

For wireless applications, the Tripod can support a Tri-Sector Adapter Mount (page 8.2) that enables the attachment of a single panel antenna on three sectors. The Tripod can also support a Wireless Frame (section 11) that mounts to 4½" OD pipes. The Wireless Frame, available in several face widths, mounts to the Tripod mast and supports up to four antennas per sector. Antenna wind loading must be within the capability of the Tripod, which limits the total antenna area to approximately 14 ft², for the 99282.

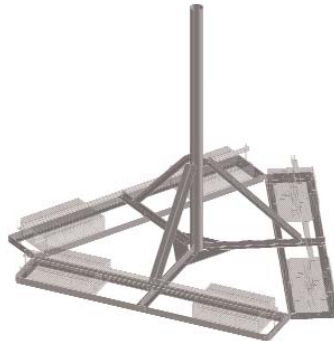
Both a B1564 Rubber Mat Kit and a 99279 Ballast Tie-Down Kit (page 13.1) are available options for this Tripod.

Maximum antenna loading for 99282 is:

1000 lb wind load applied 1' below mast top.

Maximum antenna loading for B2677 is:

700 lb wind load applied 1' below mast top.



Product Number	Description	List Price
99282	4½" OD x 8' high	\$560.00
B2677	4½" OD x 11' high	\$585.00

SLOPED ROOF MOUNT

FOR PANEL ANTENNA

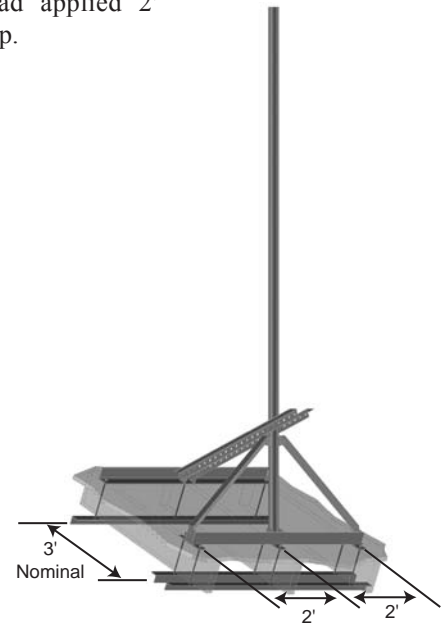
Sloped Roof Mounts support a single wireless Panel Antenna on roofs with slopes of 0°–45°.

The mast is adjustable, to enable a plumb installation regardless of the exact roof slope, and may be tilted back to the roof surface to facilitate antenna installation and maintenance. Hardware is included for mounting to roofs up to 10" thick.

Design loading, per EIA-RS-222-C, is for 100 mph and ½" of radial ice.

Maximum antenna loading is:

200 lb wind load applied 2' below the mast top.



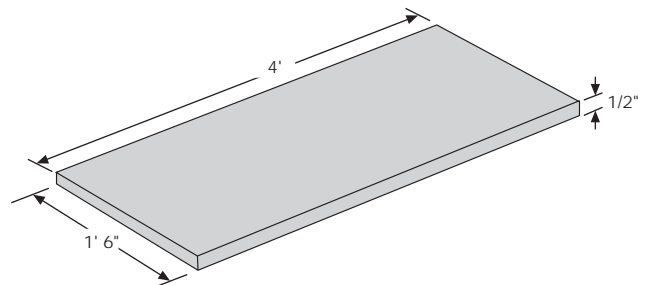
Product Number	Pipe Mast OD	Antenna Mounting Length	Mast Height Above Roof	Base Width	List Price
99284	2⅝"	8'	10'-3"	4'-2½"	\$465.00
99277	2⅞"	11'	13'	4'-3"	\$525.00

RUBBER MAT KIT

FOR NON-PENETRATING BALLASTED TRIPOD

The Rubber Mat Kit protects the roof surface. Each Kit, furnished with six ½" thick, 1'-6" wide, and 4' long mats, provides protection under the three ballast trays of a Non-Penetrating Ballasted Tripod.

Product Number	Description	List Price
B1564	Rubber Mat Kit for Non-Penetrating Ballasted Tripod	\$68.00



ANTENNA SUPPORT STRUCTURES

ROOFTOP TRIPODS

13.4

STEEL SURFACE MOUNT

FOR PANEL ANTENNA

The Steel Surface Mount, similar to the Sloped Roof Mounts (page 13.3) that support an individual Wireless Panel Antenna, mounts on steel surfaces with slopes of 0°–45°. The pipe mast extends to a height of 10'-3" above the surface.

The mast is adjustable, to enable a plumb installation regardless of the exact surface slope, and may be tilted back to the steel surface to facilitate antenna installation and maintenance. The base of the Steel Surface Mount consists of three plates, 3/8" thick x 8" square that are field welded to the steel surface.

Design loading, per EIA-RS-222-C, is for 100 mph and 1/2" of radial ice.

Maximum antenna loading is:

200 lb wind load applied 2' below the mast top.



Product Number	Description	List Price
99283	Steel Surface Mount for wireless antenna	\$390.00

"S" TRIPODS

FOR WHIP, YAGI, & GRID ANTENNA

These Rooftop Tripods, furnished with 2 3/8" OD or 2 7/8" OD Antenna-Mounting Pipes, are intended to support Whip, Yagi, or Grid Antennas. The Rooftop Tripods are designed for an anchored installation, unless combined with the 91089 Ballast Adapter (page 13.6) to enable a non-penetrating installation.

The 8' high 91199, provided with a 3' long, 2 3/8" OD Mounting Pipe, is designed for Whip and Yagi Antenna applications. The maximum wind loading is 1,000 ft-lb overturning moment for a Whip Antenna and 700 lb lateral load for a Yagi Antenna.

The 91079, 8' high, and the 91015, 15'-4" high, are provided with a 5' long, 2 7/8" OD Antenna Mounting Pipe. These two Rooftop Tripods are designed for Whip, Yagi, and Grid Antennas up to 6' diameter.

The maximum wind loading is:

1,200 ft-lb overturning moment for a whip antenna and 475 lb lateral load for the grid and yagi antennas.



Product Number	Height	Lateral Antenna Load	Base Reactions Per Leg*		List Price
			Uplift/Download	Shear	
91199	8'	700 lb	1,470 lb	464 lb	\$350.00
91079	8'	400 lb	1,080 lb	350 lb	\$350.00
91015	15'-4"	400 lb	1,600 lb	335 lb	\$395.00

*Above reactions are based on design loading, per EIA-RS-222-C, of 100 mph and no radial ice.

5" TRIPODS

FOR MICROWAVE & WIRELESS ANTENNAS

These Tripods support Microwave Antennas or support multiple Wireless Panel Antennas on a sector, using a Wireless Frame or Adapter. Tripods are designed for an anchored installation, unless combined with the 91089 Ballast Adapter (page 13.6) to enable a non-penetrating installation.

All Tripods have 5' antenna mounting area, except 91013, which has 3'-6" mounting area. Stepbolts are provided up to base of antenna mounting area.

For wireless applications, the Tripod can support a Tri-Sector Adapter Mount (page 8.2) that enables the attachment of a single Panel Antenna on three sectors. The Tripod can also support a Wireless Frame (section 11) that mounts to 4½" OD pipes. The Wireless Frame, available in several face widths, mounts to the Tripod mast and supports up to four antennas per sector.



Product Number	Height	Antenna Diameter	Lateral Antenna Load (lb)	Base Reactions Per Leg*		Max Sway at Antenna Center-Line with 20 psf, deg	List Price
				Uplift/Download (lb)	Shear (lb)		
91013	6'	4	550	625	250	0.09	\$320.00
		6	1,240	1,400	566	0.16	
91014	8'	4	550	750	250	0.17	\$345.00
		6	1,240	1,679	566	0.27	
92510	10'	4	560	1,280	660	0.27	\$420.00
92511	15'	4	560	2,065	730	0.70	\$550.00
92512	20'	4	560	3,110	880	0.67	\$940.00

*Above reactions are based on design loading, per EIA-RS-222-C, of 100 mph and no radial ice.

ANCHOR BOLT KIT

FOR ROOF MOUNTED TRIPODS

The Anchor Bolt Kits provide a set of three 7/8" diameter x 1'-6" long threaded rod anchors, with a 3" square back-up plate and the necessary hardware. Maximum roof thickness is 8".



Product Number	Description	List Price
94001	Galvanized	\$77.00
B2322	Stainless	\$140.00

ADHESIVE ANCHOR BOLT KIT

FOR ROOF MOUNTED TRIPODS

The Adhesive Anchor Bolt Kit provides a set of three 7/8" diameter x 1'-2¼" long threaded rod anchors, with the adhesive capsules and the necessary hardware.



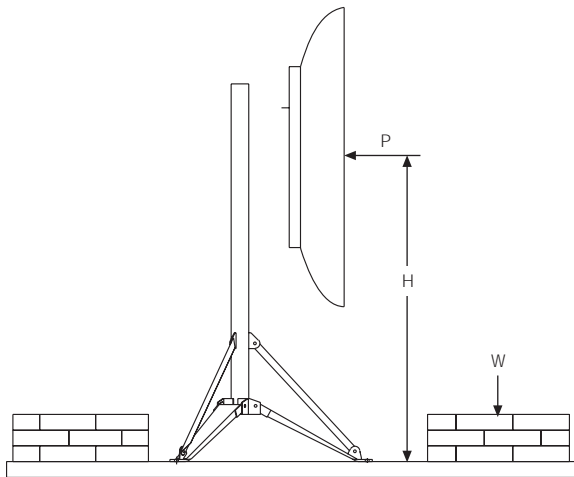
Product Number	Description	List Price
91038	Adhesive Anchor Bolt Kit for Roof Mounted Tripods	\$95.00

ANTENNA SUPPORT STRUCTURES

ROOFTOP TRIPODS

13.6

Formula for determining ballast for Tripod Ballast Adapter:



$$W = (0.15)(H)(P)$$

P= Wind load of antenna (pounds)

H= Height of antenna centerline above roof (feet)

W= Weight of ballast required (pounds)

Note: Total ballast weight per tripod is 3(W)

Example:

P= 1132 lbs. 40 PSF wind (100 mph) on 6' antenna

H= 6'

W= (0.15)(6)(1132)= 1019 lbs.

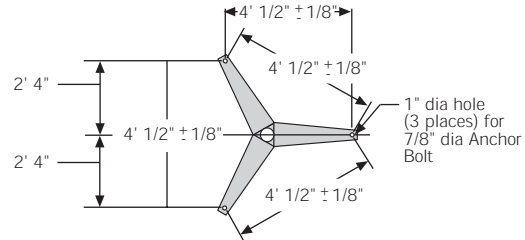
Total ballast weight per tripod:

3(W)= 3(1019)= 3057 lbs.

Note: A nominal 4x8x16 solid concrete block (CMU) weighs 20-30 lbs. Verify weight with local supplier.

ANCHOR BOLT LAYOUT

FOR "S" TRIPODS

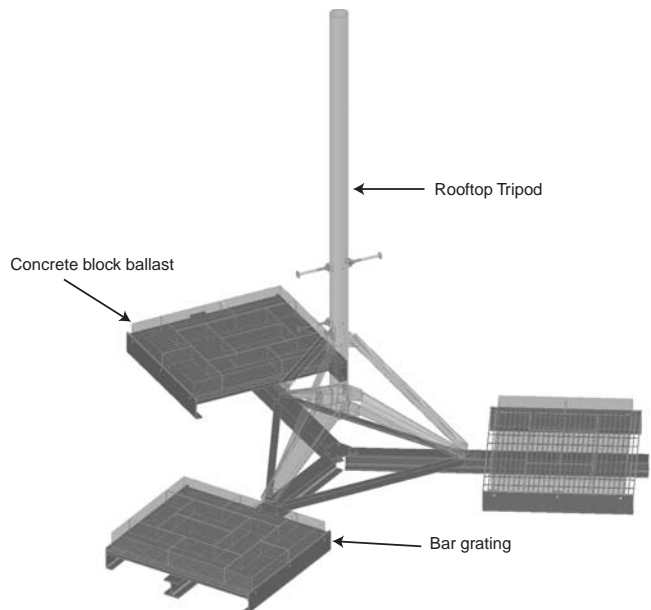


BALLAST ADAPTER

FOR ROOFTOP TRIPOD

Ballast Adapters provide the capability to install the Rooftop Tripods without anchor bolt penetration of the roof.

The Ballast Adapter consists of a star-shaped wide flange frame with three bar-grating ballast platforms. The Rooftop Tripod mounts to the Adapter with $\frac{7}{8}$ " diameter bolts (included). The Adapter is secured to the roof with concrete-block ballast (not included). For a neat and permanent installation, the blocks may be installed with mortar.



Product Number	Description	List Price
91089	Ballast Adapter for Rooftop Tripod	\$750.00