Installation Instructions

Bulletin 237634

Type EWBTK

Bending Tool Kits

for HELIAX® Elliptical Waveguide

Description

Type EWBTK Bending Kits are designed to provide E- and H-plane bends for HELIAX® elliptical waveguide. Each kit consists of two benders, one for each bending plane. The plane of the bend and the waveguide types are indicated on each bender. Refer to the table for bending information. Note that the E-plane bender will form the shorter bend and cannot be used for an H-plane bend. Resultant bends will be slightly larger than the radii listed due to the slight variation in "spring-back" of the waveguide. Waveguides that are smaller than the sizes listed for the bender can be used when minimum bends are not required.

E-plane Radii, In Inches (Millimeters)

Bending Kit	Waveguide Type	Bender Size	Resultant Bend	Minimum Allowable Bend
	EW240		8 (203)	4 (102)
	EW220		8 (203)	4 (102)
	EW180		8 (203)	6 (152)
EWBTK-1	EW132	8 (203)	8 (203)	5 (127)
	EW127A		9 (229)	5 (127)
	EW90		10 (254)	6 (152)
	EW85		14 (356)	8 (203)
	EW77		14 (356)	7 (178)
EWBTK-2	EW64	12 (305)	14 (356)	10 (254)
	EW63		16 (406)	7 (178)
	EW52		16 (406)	8 (203)
EWBTK-3	EW43	19 (483)	24 (610)	11 (279)
	EW37		25 (635)	12 (305)
EWBTK-4	EW34	22 (559)	25 (635)	17 (432)
	EW28		26 (660)	22 (559)
EWBTK-5	EW20	23 (584)	26 (660)	18 (457)
	EW17		28 (711)	20 (508)

H-plane Radii, In Inches (Millimeters)

Bending Kit	Waveguide Type	Bender Size	Resultant Bend	Minimum Allowable Bend
	EW240		22 (559)	9 (229)
	EW220		22 (559)	9 (229)
EWBTK-1	EW180	22 (559)	22 (559)	11 (279)
	EW132		22 (559)	14 (356)
	EW127A		22 (559)	11 (279)
	EW90		23 (584)	13 (330)
	EW85		32 (813)	19 (483)
	EW77		32 (813)	20 (508)
EWBTK-2	EW64	32 (813)	32 (813)	27 (686)
	EW63		42 (1067)	20 (508)
	EW52		48 (1219)	22 (560)
EWBTK-3	EW43	41 (1041)	52 (1321)	28 (711)
	EW37		54 (1372)	30 (762)
EWBTK-4	EW34	52 (1321)	60 (1524)	47 (1194)
	EW28		60 (1524)	52 (1321)
EWBTK-5	EW20	70 (1778)	71 (1803)	50 (1270)
	EW17		81 (2057)	57 (1448)

Notice

The installation, maintenance, or removal of antenna systems requires qualified, experienced personnel. Andrew installation instructions have been written for such personnel. Antenna systems should be inspected once a year by qualified personnel to verify proper installation, maintenance, and condition of equipment.

Andrew disclaims any liability or responsibility for the results of improper or unsafe installation practices.

General Guidelines

Waveguide is a precision product and must be handled accordingly to prevent kinks and dents. Never step on waveguide or allow tools or other objects to fall on it. Always provide adequate support for waveguide when forming bends, especially after hoisting. Do not attempt to bend waveguide without using benders to avoid serious and irreparable damage.

The elliptical waveguide bender is used in the same manner as an electrical conduit bender. Familiarize yourself with the bender by making practice bends on the scrap end or extra waveguide before attempting actual bends on prepared waveguide. Note such conditions as "spring-back" twisting, improper alignment of benders, and locations where bends actually begin and end with respect to the waveguide and benders. Large bends are recommended; short bends near minimum bending radii should be made only when necessary.

When waveguide is unreeled it will retain slight amount of E-plane curvature. Complete straightening of the waveguide to remove this curvature is not required.

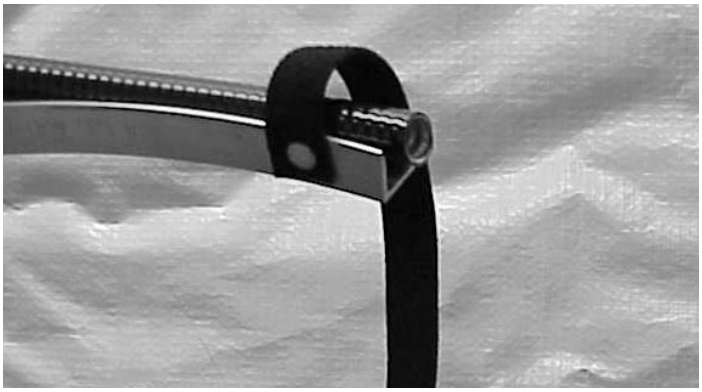
Making a Bend

Step 1: To make a bend, position the waveguide in the trough. H-plane benders have H-bend Adapters.

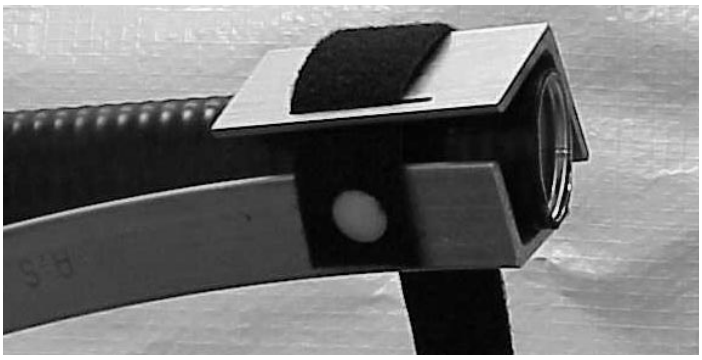
Step 2: Secure the waveguide onto the bender with fastener strap.

Step 3: Center the waveguide in the trough of the bender and move the bender along the waveguide to locate the starting point of bend. Move the waveguide against the forming surface. Hold the waveguide firmly to prevent twisting during bending. Push the waveguide against the bender to start the bend. Advance the bender after part of the bend is made and push the waveguide against the bender again. By repeating this procedure, a bend of any angle can be formed safely.

Do not bend the waveguide too near a connector. Allow at least 6" (143mm) of straight portion from the connector before starting a bend. Avoid repeated bending in a short H-plane. Make bends before hoisting the waveguide if possible.

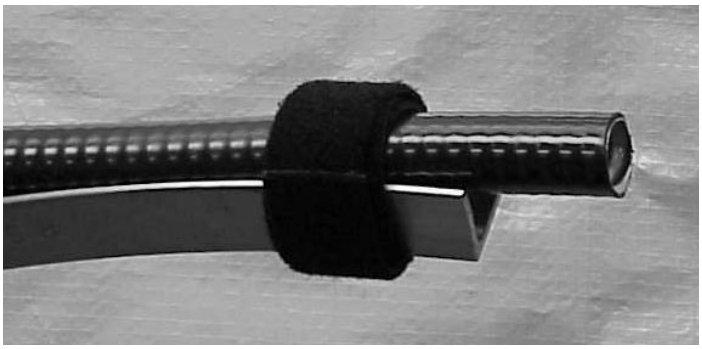


E-PLANE BEND

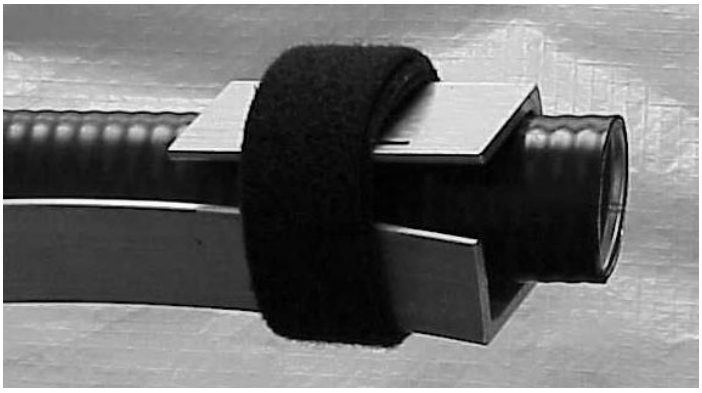


H-PLANE BEND

STEP 1



E-PLANE BEND



H-PLANE BEND

STEP 2

STEP 3

FIGURE 1

Straightening Bends

Straightening waveguide to remove misplaced bends can be accomplished; however, sufficient care should be taken in laying out work and performing original bending so that removing bends and rebending will not be required. To straighten waveguide or remove bends, rotate bender 180° on the waveguide so the bender faces opposite the existing bend. By making a series of very short bends, the original bend can be removed.

Never use larger waveguide than is recommended for the bender. This could result in a smaller than allowable minimum radius and cause serious damage to the waveguide.

Twists

Waveguide may be twisted. Refer to the installation instructions received with the waveguide for twist allowance and other installation information. Figure 1 illustrates how change of plane can be accomplished through proper use of the bender.

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