Product Data Sheet **E78**

FLEXWELL® Standard Elliptical Waveguide

Product Description

FLEXWELL® elliptical waveguide is constructed of longitudinally continuous seam welded, highly conductive copper tube, corrugated and precision formed into an elliptical cross section. It is manufactured in continuous lengths using a special seam welding process developed by the RFS organization.

The corrugation design achieves high transverse stability, flexibility and crush strength for superior handling and forming at an installation. The inherent strength and flexibility of FLEXWELL waveguide allows on location, a continuous length of waveguide to be run directly from a tower-mounted antenna to the equipment building, eliminating flange joint discontinuities and the use of bends, twists and flex sections associated with a rigid rectangular waveguide system. Because of its flexibility, FLEXWELL elliptical waveguide can be easily transported to an installation site in coils or on reels and then uncoiled as required during installation.

FLEXWELL elliptical waveguide has set an industry standard for excellent electrical performance. Each waveguide has been carefully designed for low loss and low VSWR in specific frequency bands. For optimum system performance, there is no substitute for FLEXWELL waveguide.

As part of the RFS manufacturing process, all elliptical waveguides undergo several different electrical tests. Prior to shipping, every length is 100% tested again for input VSWR, and undergoes a twenty-four hour pressure test. This additional testing is performed to guarantee conformance with published specifications and to avoid any problems in the field.

A FLEXWELL elliptical waveguide feeder requires less planning and reduces installation costs when compared to a feeder system using a rigid rectangular waveguide. FLEXWELL waveguide is available cut to length with factory attached connectors or in continuous lengths for termination in the field.

Features/Benefits

Technical Specifications

Typical Operating Band, GHz	7.1 - 8.5
Performance	Standard
Dimension over Jacket, mm (in)	44 x 26 (1.7 x 1.0)
Weight, kg/m (lb/ft)	0.6 (0.40)
Minimum Bending Radius E Plane, without rebending, mm (in)	200 (8)
Minimum Bending Radius H Plane, without rebending, mm (in)	500 (20)
Minimum Bending Radius E Plane, with rebending, mm (in)	250 (10)
Minimum Bending Radius H Plane, with rebending, mm (in)	600 (24)
Maximum Twist, degree/m (degree/ft)	5 (1.5)
Max. Operating Pressure, bar (psi)	0.5 (7)
Max. Pulling Length per Hoisting Grip, m (ft)	100 (305)
Standard Hanger Spacing, m (ft)	0.9 (3)
Recommended Installation Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Max. VSWR / Return Loss, dB	1.15 / 23.1
Cut-off Frequency, GHz	4.72

Notes

VSWR values include connectors and are valid for frequency band of connectors.
Max. Operating Band: 5.90 - 8.50 GHz

Other Documentation

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ATTENUATION, AVERAGE POWER, GROUP VELOCITY, GROUP DELAY

Frequency GHz	Attenuation dB / 100 m (ft)	Avg. Pow. kW	Group Vel. %c	Group Delay ns/100 m (ft)
7.10	6.19 (1.89)	3.44	74.7	446.5 (136.1)
7.20	6.11 (1.86)	3.48	75.5	441.7 (134.6)
7.30	6.05 (1.84)	3.52	76.3	437.3 (133.3)
7.40	5.99 (1.83)	3.56	77.0	433.1 (132.0)
7.50	5.94 (1.81)	3.59	77.7	429.2 (130.8)
7.60	5.89 (1.79)	3.62	78.4	425.6 (129.7)
7.70	5.84 (1.78)	3.65	79.0	422.2 (128.7)
7.80	5.80 (1.77)	3.67	79.6	419.0 (127.7)
7.90	5.76 (1.76)	3.70	80.2	416.0 (126.8)
8.00	5.73 (1.75)	3.72	80.7	413.1 (125.9)
8.10	5.70 (1.74)	3.74	81.3	410.5 (125.1)
8.20	5.67 (1.73)	3.76	81.8	407.9 (124.3)
8.30	5.64 (1.72)	3.77	82.3	405.5 (123.6)
8.40	5.62 (1.71)	3.79	82.7	403.2 (122.9)
8.50	5.60 (1.71)	3.81	83.2	401.1 (122.3)

For attenuation: VSWR 1.0, ambient temperature 20° C (68° F).

For average power: VSWR 1.0 and 42° C (76° F) temperature rise over 40° C (104° F) ambient.

Attenuation, Average Power, Group Velocity, Group Delay