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Կոաքսիալ ֆիդերների

Product Specifications

COMMScope®

POWERED BY



HJ11-50

HJ11-50, HELIAX® Standard Air Dielectric Coaxial Cable, corrugated copper, 4 in, black PE jacket

Construction Materials

Jacket Material	PE
Dielectric Material	PP
Flexibility	Standard
Inner Conductor Material	Copper tube
Jacket Color	Black
Outer Conductor Material	Corrugated copper

Dimensions

Nominal Size	4 in
Cable Volume	69.9 ft³/kft 6493.7 L/km
Cable Weight	3.72 kg/m 2.50 lb/ft
Diameter Over Jacket	101.600 mm 4.000 in
Inner Conductor OD	39.3700 mm 1.5500 in
Outer Conductor OD	97.536 mm 3.840 in

Electrical Specifications

Cable Impedance	50 ohm \pm 0.5 ohm
Capacitance	22.0 pF/ft 72.2 pF/m
dc Resistance, Inner Conductor	0.361 ohms/km 0.110 ohms/kft
dc Resistance, Outer Conductor	0.131 ohms/km 0.040 ohms/kft
dc Test Voltage	21000 V
Inductance	1.870 μ H/m 0.570 μ H/ft
Insulation Resistance	100000 Mohms•km
Jacket Spark Test Voltage (rms)	10000 V
Operating Frequency Band	1 – 1000 MHz
Peak Power	1100.0 kW
Power Attenuation	7.398
Velocity	92%

Environmental Specifications

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Storage Temperature	-70 °C to +85 °C (-94 °F to +185 °F)

General Specifications

Brand	HELIAX®
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Mechanical Specifications

Product Specifications

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HJ11-50

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Bending Moment	259.0 N-m 191.0 ft lb
Flat Plate Crush Strength	280.0 lb/in 5.0 kg/mm
Minimum Bend Radius, Multiple Bends	1016.00 mm 40.00 in
Number of Bends, minimum	15
Number of Bends, typical	30
Pressurization, maximum	0 N/mm ² 30 psi
Tensile Strength	408 kg 900 lb

Note

Performance Note Values typical, unless otherwise stated

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F
Average Power, Inner Conductor Temperature	121 °C 250 °F

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
0.5	0.024	0.007	999.85
1	0.034	0.01	704.91
1.5	0.042	0.013	574.25
2	0.049	0.015	496.37
10	0.111	0.034	218.15
20	0.159	0.049	152.28
30	0.197	0.06	123.13
50	0.258	0.079	93.93
88	0.35	0.107	69.28
100	0.376	0.114	64.62
108	0.392	0.119	61.95
150	0.47	0.143	51.68
174	0.51	0.155	47.58
200	0.552	0.168	44.00
300	0.695	0.212	34.94
400	0.821	0.25	29.57
450	0.88	0.268	27.60
500	0.936	0.285	25.93
512	0.949	0.289	25.57
600	1.044	0.318	23.26
700	1.145	0.349	21.19
800	1.242	0.379	19.54
824	1.265	0.386	19.19
894	1.33	0.405	18.25
960	1.39	0.424	17.46
1000	1.426	0.435	17.03

* Values typical, guaranteed within 5%

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

COMMScope®

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HJ8-50B

HJ8-50B, HELIAX® Standard Air Dielectric Coaxial Cable, corrugated copper, 3 in, black PE jacket

Construction Materials

Jacket Material	PE
Dielectric Material	PP
Flexibility	Standard
Inner Conductor Material	Copper tube
Jacket Color	Black
Outer Conductor Material	Corrugated copper

Dimensions

Nominal Size	3 in
Cable Volume	36.7 ft³/kft 3409.4 L/km
Cable Weight	2.65 kg/m 1.78 lb/ft
Diameter Over Jacket	76.454 mm 3.010 in
Inner Conductor OD	28.9560 mm 1.1400 in
Outer Conductor OD	72.390 mm 2.850 in

Electrical Specifications

Cable Impedance	50 ohm \pm 0.5 ohm
Capacitance	21.7 pF/ft 71.2 pF/m
dc Resistance, Inner Conductor	0.492 ohms/km 0.150 ohms/kft
dc Resistance, Outer Conductor	0.229 ohms/km 0.070 ohms/kft
dc Test Voltage	16000 V
Inductance	1.870 μ H/m 0.570 μ H/ft
Insulation Resistance	100000 Mohms•km
Jacket Spark Test Voltage (rms)	10000 V
Operating Frequency Band	1 – 1640 MHz
Peak Power	640.0 kW
Power Attenuation	5.997
Velocity	93%

Environmental Specifications

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Storage Temperature	-70 °C to +85 °C (-94 °F to +185 °F)

General Specifications

Brand	HELIAX®
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Mechanical Specifications

Product Specifications

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HJ8-50B

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Bending Moment	40.7 N-m 30.0 ft lb
Flat Plate Crush Strength	175.0 lb/in 3.1 kg/mm
Minimum Bend Radius, Multiple Bends	762.00 mm 30.00 in
Number of Bends, minimum	15
Number of Bends, typical	25
Pressurization, maximum	0 N/mm ² 30 psi
Tensile Strength	340 kg 750 lb

Note

Performance Note Values typical, unless otherwise stated

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F
Average Power, Inner Conductor Temperature	121 °C 250 °F

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
0.5	0.029	0.009	640.00
1	0.041	0.013	475.54
1.5	0.051	0.015	387.10
2	0.059	0.018	334.39
10	0.135	0.041	146.12
20	0.194	0.059	101.58
30	0.24	0.073	81.88
50	0.317	0.096	62.16
88	0.432	0.132	45.55
100	0.464	0.141	42.41
108	0.484	0.148	40.62
150	0.584	0.178	33.72
174	0.635	0.194	30.96
200	0.689	0.21	28.56
300	0.874	0.266	22.50
400	1.039	0.317	18.93
450	1.117	0.34	17.62
500	1.192	0.363	16.51
512	1.209	0.369	16.27
600	1.335	0.407	14.74
700	1.47	0.448	13.38
800	1.601	0.488	12.29
824	1.631	0.497	12.06
894	1.719	0.524	11.45
960	1.8	0.549	10.93
1000	1.849	0.563	10.64
1250	2.14	0.652	9.19
1500	2.418	0.737	8.14

* Values typical, guaranteed within 5%

Regulatory Compliance/Certifications

Product Specifications

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HJ8-50B

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Agency

ISO 9001:2008

Classification

Designed, manufactured and/or distributed under this quality management system

Product Specifications

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LDF12-50

LDF12-50, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 2-1/4 in, black PE jacket

Construction Materials

Jacket Material	PE
Outer Conductor Material	Corrugated copper
Dielectric Material	Foam PE
Flexibility	Standard
Inner Conductor Material	Corrugated copper tube
Jacket Color	Black

Dimensions

Nominal Size	2-1/4 in
Cable Weight	1.22 lb/ft 1.82 kg/m
Diameter Over Dielectric	52.832 mm 2.080 in
Diameter Over Jacket	59.690 mm 2.350 in
Inner Conductor OD	21.0820 mm 0.8300 in
Outer Conductor OD	55.880 mm 2.200 in

Electrical Specifications

Cable Impedance	50 ohm \pm 1 ohm
Capacitance	22.7 pF/ft 74.5 pF/m
dc Resistance, Inner Conductor	0.210 ohms/kft 0.689 ohms/km
dc Resistance, Outer Conductor	0.090 ohms/kft 0.295 ohms/km
dc Test Voltage	13000 V
Inductance	0.190 μ H/m 0.058 μ H/ft
Insulation Resistance	100000 Mohms•km
Jacket Spark Test Voltage (rms)	10000 V
Operating Frequency Band	1 – 2200 MHz
Peak Power	425.0 kW
Velocity	88%

Environmental Specifications

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-70 °C to +85 °C (-94 °F to +185 °F)

General Specifications

Brand	HELIAX®
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Mechanical Specifications

Bending Moment	94.9 N-m 70.0 ft lb
Flat Plate Crush Strength	150.0 lb/in 2.7 kg/mm

Product Specifications

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IDF12-50

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Minimum Bend Radius, Multiple Bends	558.80 mm 22.00 in
Minimum Bend Radius, Single Bend	241.30 mm 9.50 in
Number of Bends, minimum	15
Number of Bends, typical	50
Tensile Strength	680 kg 1500 lb

Note

Performance Note Values typical, unless otherwise stated

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F
Average Power, Inner Conductor Temperature	100 °C 212 °F

Return Loss/VSWR


Frequency Band	VSWR	Return Loss (dB)
806–960 MHz	1.15	23.13
1700–2000 MHz	1.15	23.13

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
0.5	0.037	0.011	323.89
1	0.052	0.016	228.42
1.5	0.064	0.02	186.13
2	0.074	0.023	160.92
10	0.169	0.052	70.86
20	0.242	0.074	49.54
30	0.299	0.091	40.10
50	0.391	0.119	30.64
88	0.529	0.161	22.65
100	0.566	0.173	21.14
108	0.591	0.18	20.28
150	0.707	0.215	16.95
174	0.767	0.234	15.61
200	0.829	0.253	14.45
300	1.041	0.317	11.51
400	1.227	0.374	9.76
450	1.313	0.4	9.12
500	1.396	0.426	8.58
512	1.416	0.432	8.46
600	1.554	0.474	7.71
700	1.703	0.519	7.03
800	1.845	0.562	6.49
824	1.878	0.572	6.38
894	1.973	0.601	6.07
960	2.06	0.628	5.81
1000	2.112	0.644	5.67
1250	2.423	0.739	4.94
1500	2.716	0.828	4.41
1700	2.94	0.896	4.07

Product Specifications

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LDF12-50				POWERED BY			
1800	3.049	0.929		3.93			
2000	3.262	0.994		3.67			
2100	3.366	1.026		3.56			
2200	3.469	1.057		3.45			

* Values typical, guaranteed within 5%

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system





AVA7-50

AVA7-50, HELIAX® Andrew Virtual Air™ Coaxial Cable, corrugated copper, 1-5/8 in, black PE jacket

Construction Materials

Jacket Material	PE
Outer Conductor Material	Corrugated copper
Dielectric Material	Foam PE
Flexibility	Standard
Inner Conductor Material	Corrugated copper tube
Jacket Color	Black

Dimensions

Nominal Size	1-5/8 in
Cable Weight	0.70 lb/ft 1.00 kg/m
Diameter Over Dielectric	44.450 mm 1.750 in
Diameter Over Jacket	51.054 mm 2.010 in
Inner Conductor OD	18.1610 mm 0.7150 in
Outer Conductor OD	46.355 mm 1.825 in

Electrical Specifications

Cable Impedance	50 ohm \pm 1 ohm
Capacitance	22.0 pF/ft 72.2 pF/m
dc Resistance, Inner Conductor	0.410 ohms/kft 1.435 ohms/km
dc Resistance, Outer Conductor	0.160 ohms/kft 0.525 ohms/km
dc Test Voltage	15000 V
Inductance	0.187 μ H/m 0.057 μ H/ft
Insulation Resistance	100000 Mohms•km
Jacket Spark Test Voltage (rms)	10000 V
Operating Frequency Band	1 – 2700 MHz
Peak Power	302.0 kW
Velocity	92%

Environmental Specifications

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-70 °C to +85 °C (-94 °F to +185 °F)

General Specifications

Product Specifications

COMMScope®

AVA7-50

Brand

HELIAX®

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Mechanical Specifications

Bending Moment	47.5 N-m 35.0 ft lb
Flat Plate Crush Strength	90.0 lb/in 1.6 kg/mm
Minimum Bend Radius, Multiple Bends	381.00 mm 15.00 in
Minimum Bend Radius, Single Bend	203.20 mm 8.00 in
Number of Bends, minimum	15
Number of Bends, typical	50
Tensile Strength	181 kg 400 lb

Note

Performance Note Values typical, unless otherwise stated

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F
Average Power, Inner Conductor Temperature	100 °C 212 °F

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
680–800 MHz	1.13	24.30
806–960 MHz	1.13	24.30
1700–2170 MHz	1.13	24.30

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
0.5	0.044	0.013	166.49
1	0.062	0.019	117.56
1.5	0.076	0.023	95.88
2	0.088	0.027	82.96
10	0.197	0.06	36.78
20	0.281	0.086	25.84
30	0.346	0.105	21.00
50	0.45	0.137	16.14
88	0.603	0.184	12.03
100	0.645	0.197	11.26
108	0.672	0.205	10.81
150	0.798	0.243	9.09
174	0.864	0.263	8.41
200	0.93	0.284	7.81
300	1.156	0.352	6.28
400	1.351	0.412	5.37
450	1.441	0.439	5.04
500	1.527	0.465	4.76
512	1.547	0.471	4.69
600	1.689	0.515	4.30
700	1.84	0.561	3.95

Product Specifications

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800	1.982	0.604	3.66
824	2.016	0.614	3.60
894	2.11	0.643	3.44
960	2.197	0.67	3.30
1000	2.249	0.685	3.23
1250	2.554	0.779	2.84
1500	2.838	0.865	2.56
1700	3.053	0.93	2.38
1800	3.157	0.962	2.30
2000	3.359	1.024	2.16
2100	3.457	1.054	2.10
2200	3.554	1.083	2.04
2300	3.649	1.112	1.99
2500	3.836	1.169	1.89
2700	4.017	1.224	1.81

* Values typical, guaranteed within 5%

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU

China RoHS SJ/T 11364-2006

ISO 9001:2008

Classification

Compliant

Below Maximum Concentration Value (MCV)

Designed, manufactured and/or distributed under this quality management system





AVA5-50FX

AVA5-50FX, HELIAX® Andrew Virtual Air™ Coaxial Cable, corrugated copper, 7/8 in, black PE jacket

Construction Materials

Jacket Material	PE
Outer Conductor Material	Corrugated copper
Dielectric Material	Foam PE
Flexibility	Standard
Inner Conductor Material	Copper
Jacket Color	Black

Dimensions

Nominal Size	7/8 in
Cable Weight	0.29 lb/ft 0.43 kg/m
Diameter Over Dielectric	24.130 mm 0.950 in
Diameter Over Jacket	27.991 mm 1.102 in
Inner Conductor OD	9.4488 mm 0.3720 in
Outer Conductor OD	25.400 mm 1.000 in

Electrical Specifications

Cable Impedance	50 ohm \pm 1 ohm
Capacitance	22.0 pF/ft 73.0 pF/m
dc Resistance, Inner Conductor	0.825 ohms/kft 2.888 ohms/km
dc Resistance, Outer Conductor	0.400 ohms/kft 1.313 ohms/km
dc Test Voltage	6000 V
Inductance	0.184 μ H/m 0.056 μ H/ft
Insulation Resistance	100000 Mohms•km
Jacket Spark Test Voltage (rms)	8000 V
Operating Frequency Band	1 – 5000 MHz
Peak Power	91.0 kW
Velocity	90%

Environmental Specifications

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-55 °C to +70 °C (-67 °F to +158 °F)
Storage Temperature	-70 °C to +70 °C (-94 °F to +158 °F)

General Specifications

Product Specifications

COMMScope®

AVA5-50FX

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Brand

HELIAX®

Mechanical Specifications

Bending Moment	27.1 N-m 20.0 ft lb
Flat Plate Crush Strength	75.0 lb/in
Minimum Bend Radius, Multiple Bends	254.00 mm 10.00 in
Minimum Bend Radius, Single Bend	127.00 mm 5.00 in
Number of Bends, minimum	15
Number of Bends, typical	30
Tensile Strength	159 kg 350 lb

Note

Performance Note	Values typical, unless otherwise stated
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Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F
Average Power, Inner Conductor Temperature	100 °C 212 °F

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
680–800 MHz	1.13	24.30
800–960 MHz	1.13	24.30
1700–2200 MHz	1.13	24.30

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
0.5	0.08	0.024	91.00
1	0.113	0.034	74.43
1.5	0.138	0.042	60.73
2	0.16	0.049	52.56
10	0.359	0.11	23.37
20	0.51	0.156	16.46
30	0.627	0.191	13.39
50	0.814	0.248	10.32
88	1.088	0.332	7.72
100	1.162	0.354	7.23
108	1.209	0.368	6.95
150	1.433	0.437	5.86
174	1.548	0.472	5.43
200	1.665	0.507	5.05
300	2.059	0.628	4.08
400	2.398	0.731	3.50
450	2.553	0.778	3.29
500	2.7	0.823	3.11
512	2.735	0.834	3.07
600	2.977	0.907	2.82
700	3.235	0.986	2.60

Product Specifications

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AVA5-50FX

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800	3.478	1.06	2.42
824	3.534	1.077	2.38
894	3.694	1.126	2.27
960	3.841	1.171	2.19
1000	3.927	1.197	2.14
1250	4.44	1.353	1.89
1500	4.912	1.497	1.71
1700	5.268	1.606	1.59
1800	5.439	1.658	1.54
2000	5.771	1.759	1.46
2100	5.933	1.808	1.42
2200	6.091	1.856	1.38
2300	6.247	1.904	1.34
2500	6.551	1.996	1.28
2700	6.845	2.086	1.23
3000	7.273	2.217	1.15
3400	7.819	2.383	1.07
3700	8.213	2.503	1.02
4000	8.596	2.62	0.98
5000	9.807	2.989	0.86

* Values typical, guaranteed within 5%

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

COMMSCOPE®

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LDF4-50A

LDF4-50A, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/2 in, black PE jacket

Construction Materials

Jacket Material	PE
Outer Conductor Material	Corrugated copper
Dielectric Material	Foam PE
Flexibility	Standard
Inner Conductor Material	Copper-clad aluminum wire
Jacket Color	Black

Dimensions

Nominal Size	1/2 in
Cable Weight	0.15 lb/ft 0.22 kg/m
Diameter Over Dielectric	12.954 mm 0.510 in
Diameter Over Jacket	15.875 mm 0.625 in
Inner Conductor OD	4.8260 mm 0.1900 in
Outer Conductor OD	13.970 mm 0.550 in

Electrical Specifications

Cable Impedance	50 ohm \pm 1 ohm
Capacitance	23.1 pF/ft 75.8 pF/m
dc Resistance, Inner Conductor	0.450 ohms/kft 1.480 ohms/km
dc Resistance, Outer Conductor	0.820 ohms/kft 2.690 ohms/km
dc Test Voltage	4000 V
Inductance	0.190 μ H/m 0.058 μ H/ft
Insulation Resistance	100000 Mohms•km
Jacket Spark Test Voltage (rms)	8000 V
Operating Frequency Band	1 – 8800 MHz
Peak Power	40.0 kW
Velocity	88%

Environmental Specifications

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-70 °C to +85 °C (-94 °F to +185 °F)

General Specifications

Brand	HELIAX®
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Mechanical Specifications

Bending Moment	3.8 N-m 2.8 ft lb
Flat Plate Crush Strength	110.0 lb/in 2.0 kg/mm

Product Specifications

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LDF4-50A

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Minimum Bend Radius, Multiple Bends	127.00 mm 5.00 in
Minimum Bend Radius, Single Bend	50.80 mm 2.00 in
Number of Bends, minimum	15
Number of Bends, typical	50
Tensile Strength	113 kg 250 lb

Note

Performance Note Values typical, unless otherwise stated

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F
Average Power, Inner Conductor Temperature	100 °C 212 °F

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
806–960 MHz	1.13	24.30
1700–2000 MHz	1.13	24.30

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
0.5	0.149	0.045	40.00
1	0.211	0.064	36.11
1.5	0.259	0.079	29.46
2	0.299	0.091	25.50
10	0.672	0.205	11.35
20	0.954	0.291	7.99
30	1.172	0.357	6.51
50	1.521	0.463	5.02
88	2.031	0.619	3.76
100	2.169	0.661	3.52
108	2.256	0.688	3.38
150	2.673	0.815	2.85
174	2.887	0.88	2.64
200	3.103	0.946	2.46
300	3.835	1.169	1.99
400	4.462	1.36	1.71
450	4.749	1.447	1.61
500	5.021	1.53	1.52
512	5.085	1.55	1.50
600	5.533	1.686	1.38
700	6.009	1.831	1.27
800	6.456	1.968	1.18
824	6.56	1.999	1.16
894	6.855	2.089	1.11
960	7.124	2.171	1.07
1000	7.284	2.22	1.05
1250	8.226	2.507	0.93
1500	9.093	2.771	0.84
1700	9.744	2.97	0.78

Product Specifications

COMMScope®

LDF4-50A

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1800	10.058	3.066	0.76
2000	10.666	3.251	0.72
2100	10.961	3.341	0.70
2200	11.251	3.429	0.68
2300	11.535	3.516	0.66
2500	12.09	3.685	0.63
2700	12.627	3.849	0.60
3000	13.407	4.086	0.57
3400	14.401	4.389	0.53
3700	15.118	4.608	0.50
4000	15.815	4.82	0.48
5000	18.01	5.489	0.42
6000	20.055	6.113	0.38
8000	23.826	7.262	0.32
8800	25.244	7.694	0.30

* Values typical, guaranteed within 5%

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU

China RoHS SJ/T 11364-2006

ISO 9001:2008

Classification

Compliant

Below Maximum Concentration Value (MCV)

Designed, manufactured and/or distributed under this quality management system



Product Specifications

COMMScope®

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H11FB-302

3-1/8 in EIA Female Flange with gas barrier for 4 in HJ11-50 air dielectric cable

General Specifications

Interface	3-1/8 in EIA Female Flange
Body Style	Straight
Brand	HELIAX®
Gas Barrier	Yes
Mounting Angle	Straight

Electrical Specifications

Connector Impedance	50 ohm
Operating Frequency Band	0 – 1000 MHz
Cable Impedance	50 ohm
RF Operating Voltage, maximum (vrms)	6717.00 V
dc Test Voltage	19 kV
Insulation Resistance, minimum	5000 MOhm
Average Power	16.0 kW @ 900 MHz
Peak Power, maximum	902.00 kW
Insertion Loss, typical	0.05 dB

Mechanical Specifications

Outer Contact Attachment Method	Tab-flare
Inner Contact Attachment Method	Thread-in stub
Outer Contact Plating	Unplated
Inner Contact Plating	Silver

Dimensions

Nominal Size	4 in
Diameter	138.18 mm 5.44 in
Length	177.80 mm 7.00 in
Weight	5.44 kg 12.00 lb

Environmental Specifications

Operating Temperature	-40 °C to +150 °C (-40 °F to +302 °F)
Storage Temperature	-70 °C to +100 °C (-94 °F to +212 °F)

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
----------------	------	------------------

Product Specifications

COMMScope®

H11FB-302

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45–360 MHz	1.01	43.00
360–600 MHz	1.02	41.00
600–900 MHz	1.02	39.00

Regulatory Compliance/Certifications

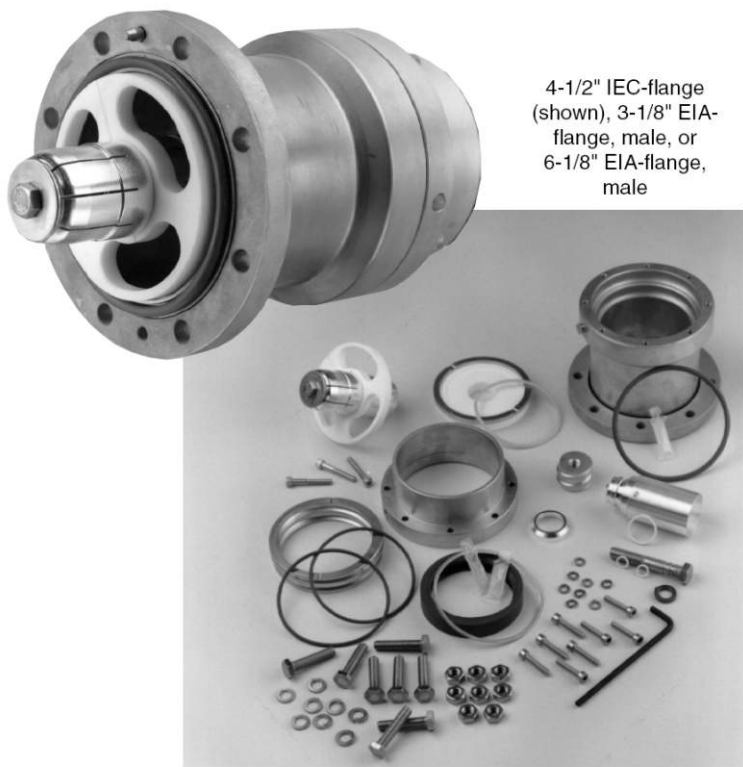
Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

* Footnotes

Insertion Loss, typical 0.05v⁻freq (GHz) (not applicable for elliptical waveguide)

Connectors

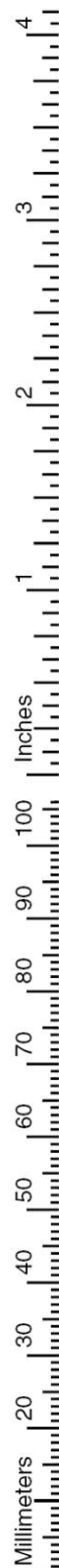
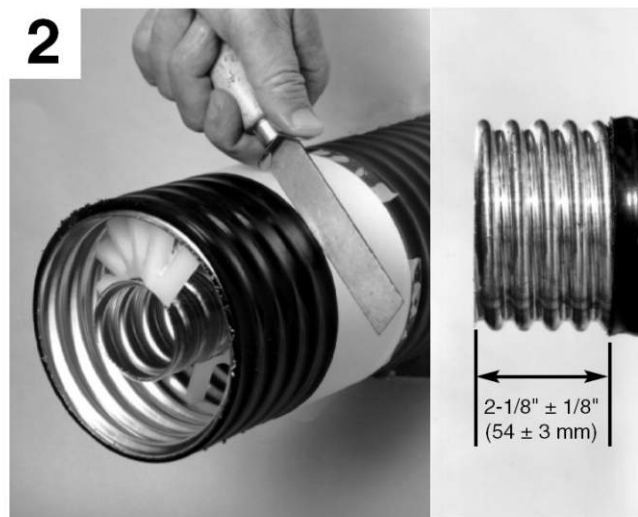
for HELIAX® HJ11-50 Coaxial Cable

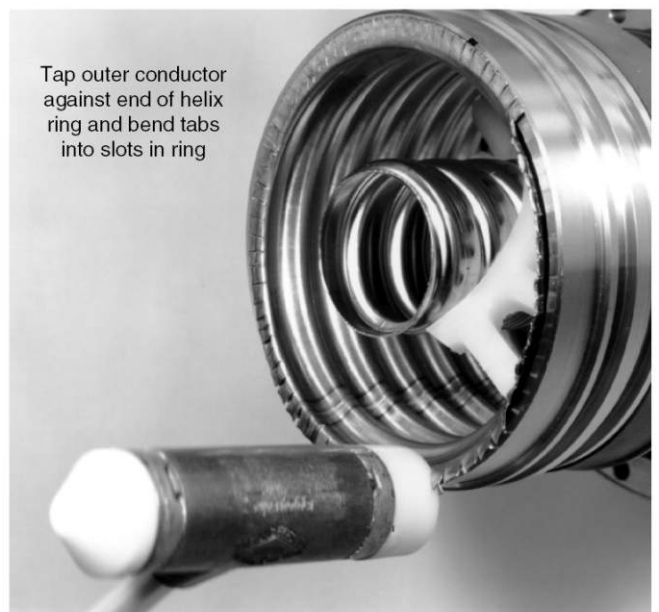
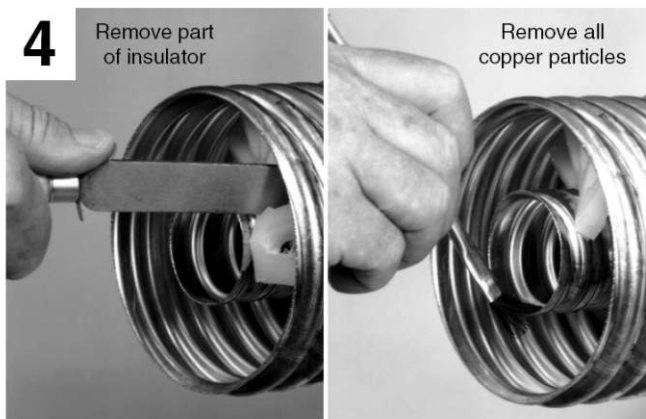
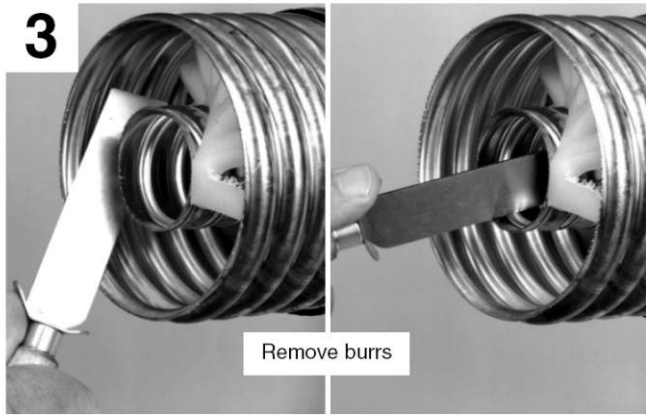


4-1/2" IEC-flange
(shown), 3-1/8" EIA-
flange, male, or
6-1/8" EIA-flange,
male

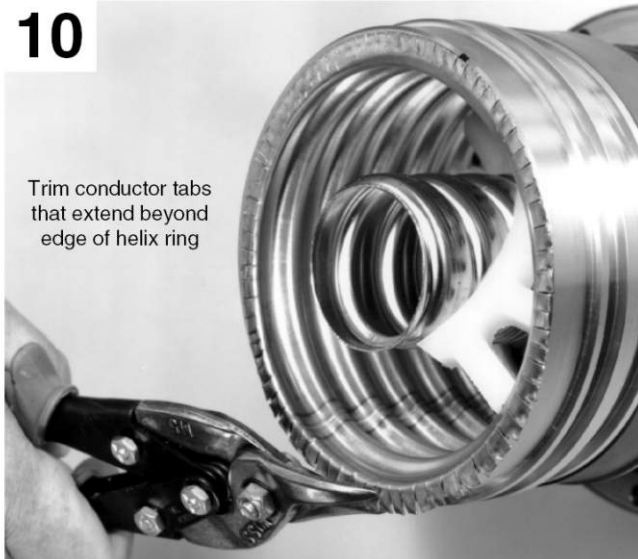


4-1/2" IEC-flange
(shown) or 3-1/8" EIA-
flange, female,
or 6-1/8" EIA-flange,
female

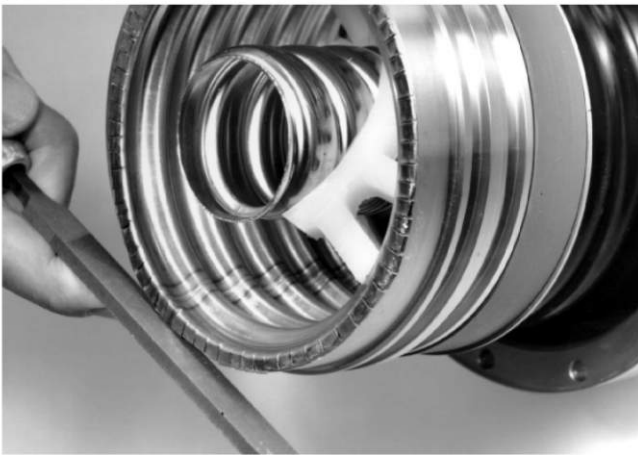




10



Trim conductor tabs
that extend beyond
edge of helix ring



13



Position stub. Lay
scale flush against
stub to align with
outer conductor.

14

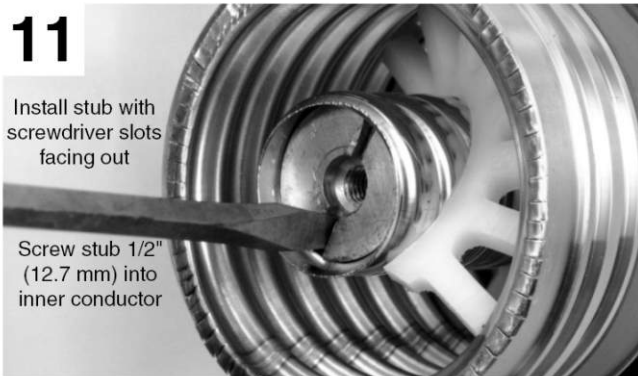


Bend tabs over
stub slots



Bend tab into slot to
hold stub in place

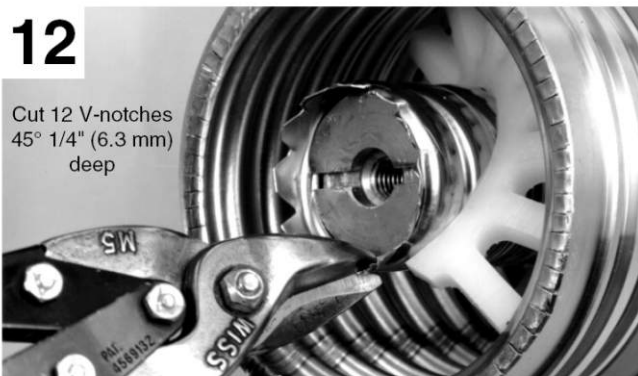
11



Install stub with
screwdriver slots
facing out

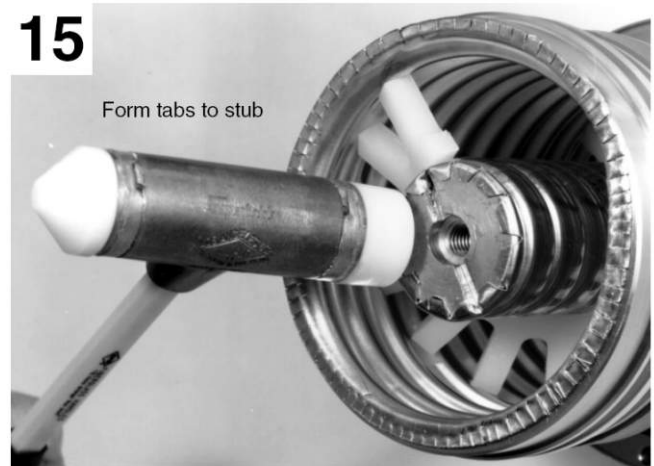
Screw stub 1/2"
(12.7 mm) into
inner conductor

12



Cut 12 V-notches
45° 1/4" (6.3 mm)
deep

15



Form tabs to stub

16

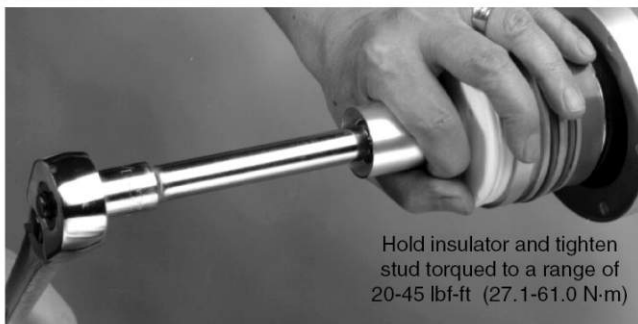
Prepare the insulator:

- If you need a gas block connector, skip to step 17.
- If you need a gas pass connector, drill through 4 insulator guide holes with 3/16" (4.7 mm) drill for gas-pass operation



17

Place flare ring on insulator and screw stud into stub so that pin enters stub slot



Hold insulator and tighten stud torqued to a range of 20-45 lbf-ft (27.1-61.0 N·m)

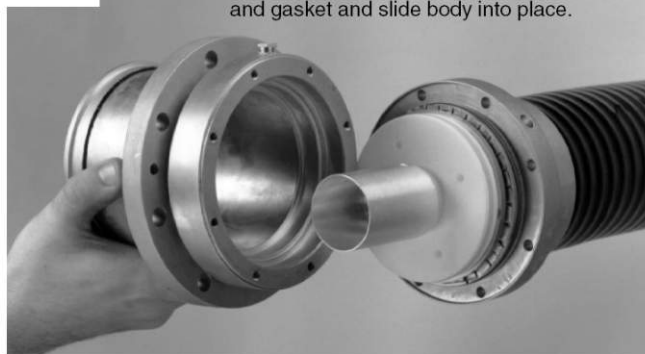
Notice

The installation, maintenance, or removal of antenna systems requires qualified, experienced personnel. Andrew installation instructions are 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 installation practices.

18

Place 2 O-rings on helix ring and 1 O-ring on insulator. Apply silicone grease to O-rings and gasket and slide body into place.



19

Use 3 long screws, equally spaced, to pull parts together. Add short screws, replace long screws with short screws, and tighten screws to 6-8 lbf-ft (8.1-10.8 N·m)



Male



Female

Want Andrew to attach connectors for you? Call us.

Skilled personnel at Andrew can attach connectors for you, quickly and economically. Every factory-made cable assembly is 100% tested to customer requirements before shipment and has a 10-year warranty. For details about this service, contact Andrew.



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U.K.: 0800 250055
Other Europe: +44 1592 782612

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H8FB-302

3-1/8 in EIA Female Flange with gas barrier for 3 in HJ8-50B air dielectric cable

General Specifications

Interface	3-1/8 in EIA Female Flange
Body Style	Straight
Brand	HELIAX®
Gas Barrier	Yes
Mounting Angle	Straight

Electrical Specifications

Connector Impedance	50 ohm
Operating Frequency Band	0 – 1640 MHz
Cable Impedance	50 ohm
RF Operating Voltage, maximum (vrms)	6717.00 V
dc Test Voltage	19 kV
Insulation Resistance, minimum	5000 MOhm
Average Power	16.0 kW @ 900 MHz
Peak Power, maximum	902.00 kW
Insertion Loss, typical	0.05 dB

Mechanical Specifications

Outer Contact Attachment Method	Tab-flare
Inner Contact Attachment Method	Thread-in stub
Outer Contact Plating	Silver
Inner Contact Plating	Silver

Dimensions

Nominal Size	3 in
Diameter	131.75 mm 5.19 in
Length	152.40 mm 6.00 in
Weight	3.98 kg 8.78 lb

Environmental Specifications

Operating Temperature	-40 °C to +150 °C (-40 °F to +302 °F)
Storage Temperature	-70 °C to +100 °C (-94 °F to +212 °F)

Return Loss/VSWR

Product Specifications

COMMScope®

H8FB-302

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Frequency Band	VSWR	Return Loss (dB)
824–960 MHz	1.02	40.00
1710–1880 MHz	1.02	40.00
1850–1990 MHz	1.03	37.60
1910–2200 MHz	1.03	37.60
2210–2500 MHz	1.04	33.40

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

* Footnotes

Insertion Loss, typical 0.05v̄freq (GHz) (not applicable for elliptical waveguide)

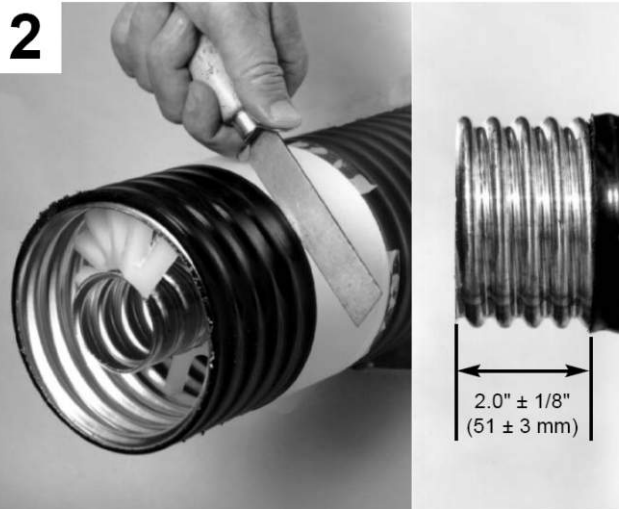
Installation Instructions

Connectors

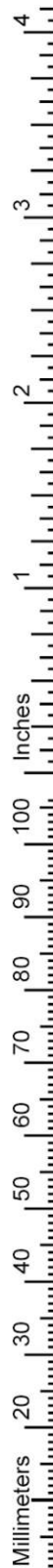
for HELIAX® HJ8-50 Coaxial Cable



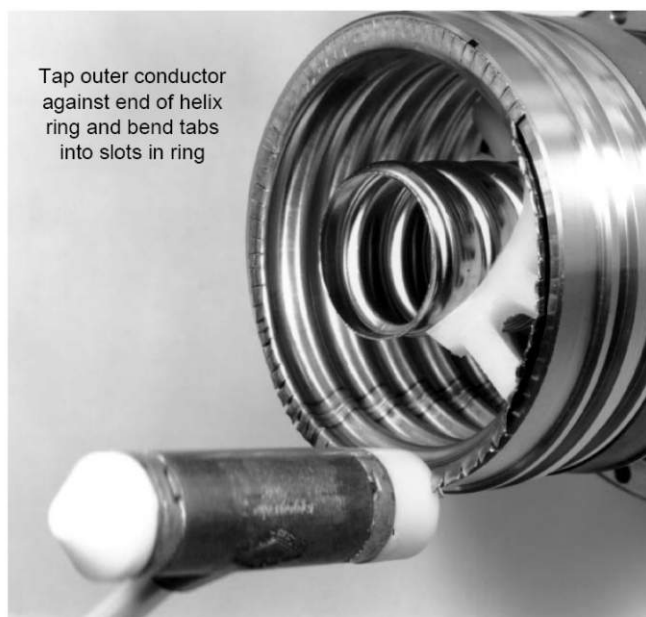
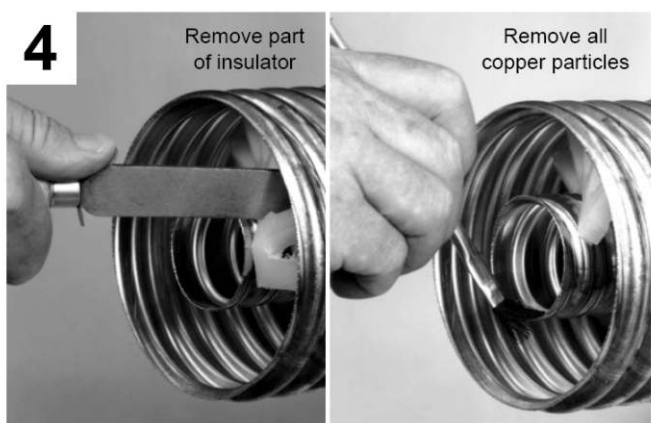
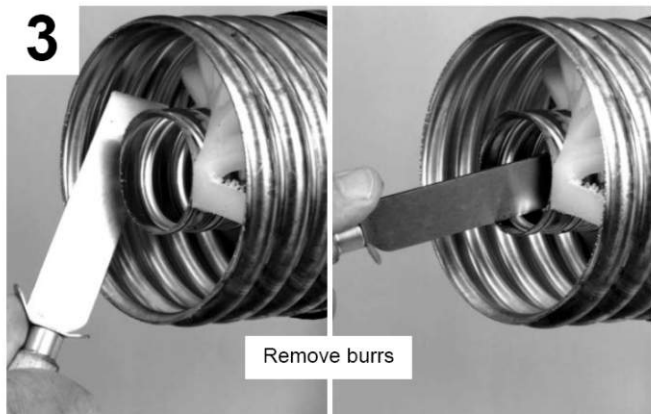
3-1/8" EIA-flange,
male



3-1/8" EIA-flange,
female

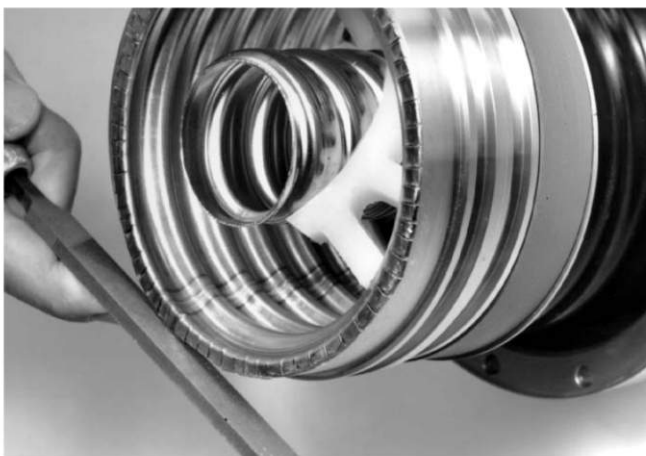
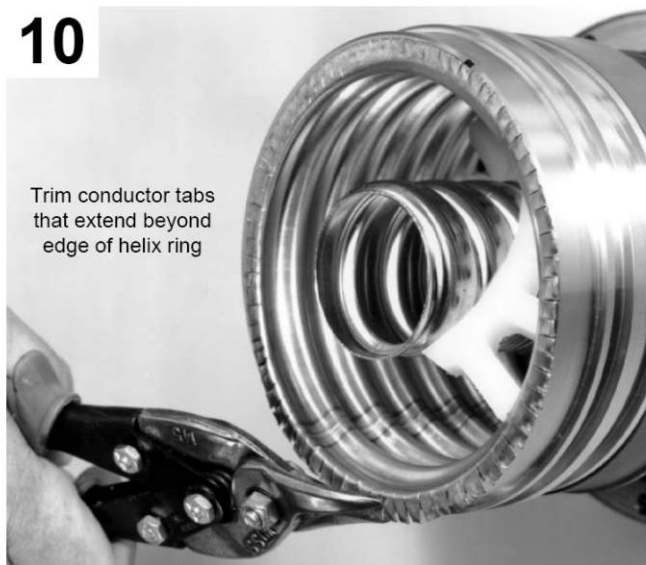


2.0" ± 1/8"
(51 ± 3 mm)



10

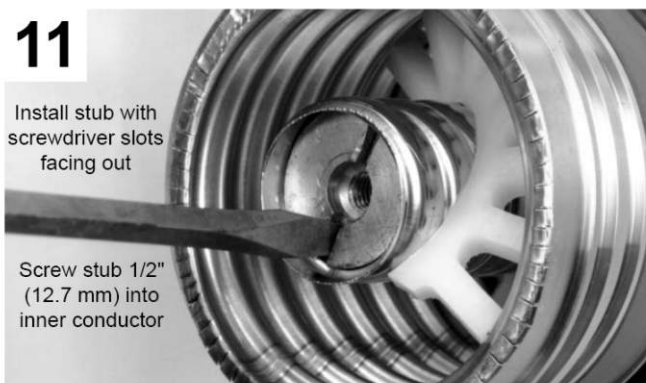
Trim conductor tabs that extend beyond edge of helix ring



11

Install stub with screwdriver slots facing out

Screw stub 1/2" (12.7 mm) into inner conductor



12

Cut 12 V-notches 45° 3/16" (5 mm) deep

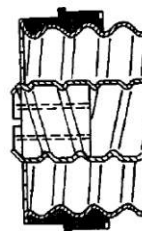


13



13a

Position stub so that the bottom of slot in stub is flush with the outer conductor. The stub protrudes slightly. See Figure 13a.



14

Bend tabs over stub slots

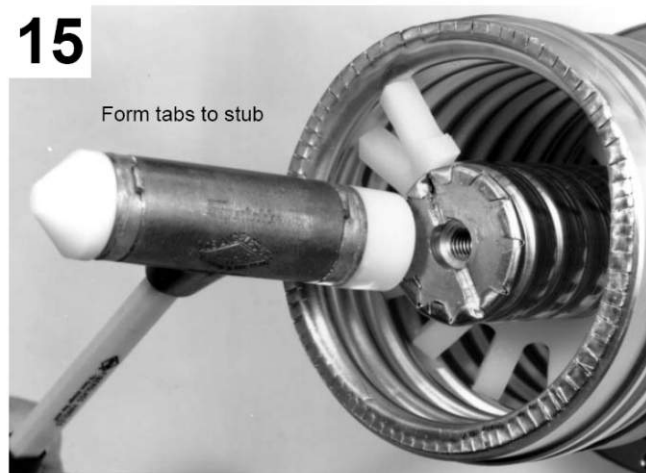


Bend tab into slot to hold stub in place



15

Form tabs to stub



16

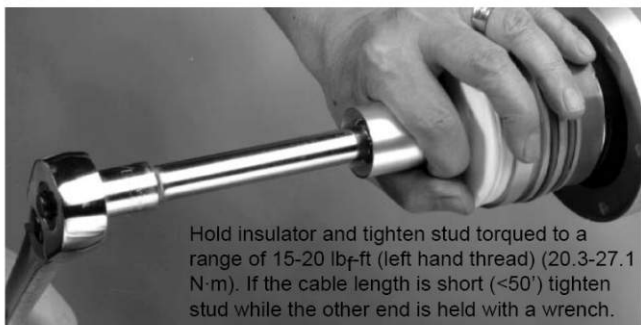
Prepare the insulator:

- If you need a gas block connector, skip to step 17.
- If you need a gas pass connector, drill through 4 insulator guide holes with 3/16" (4.7 mm) drill for gas-pass operation



17

Place flare ring on insulator. Place inner connector ring on stud. Screw stud into stub.



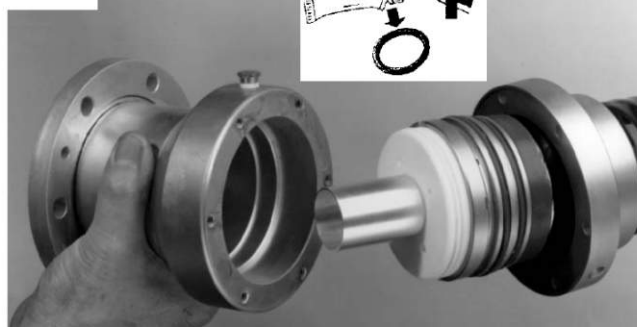
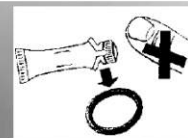
Hold insulator and tighten stud torqued to a range of 15-20 lb_f-ft (left hand thread) (20.3-27.1 N·m). If the cable length is short (<50') tighten stud while the other end is held with a wrench.

Notice

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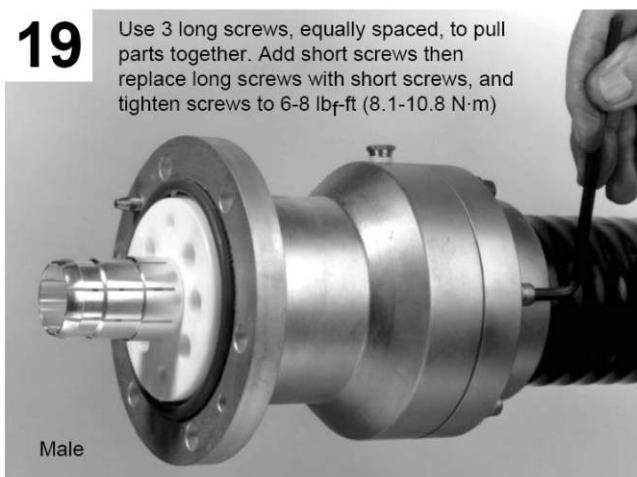
18



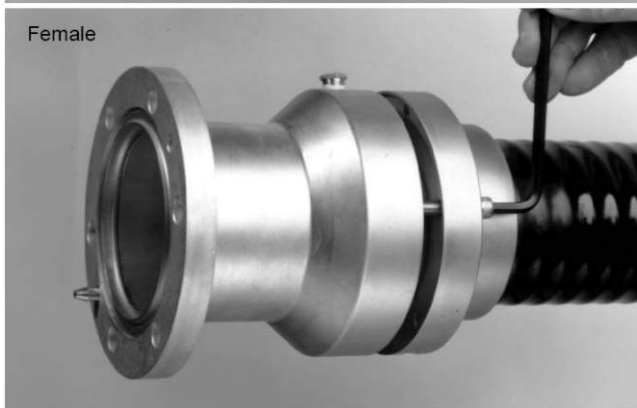
Place 2 O-rings on helix ring and 1 O-ring on insulator. Apply silicone grease to O-rings and gasket and slide body into place.

19

Use 3 long screws, equally spaced, to pull parts together. Add short screws then replace long screws with short screws, and tighten screws to 6-8 lb_f-ft (8.1-10.8 N·m)



Male



Female

Want Andrew to attach connectors for you? Call us. Skilled personnel at Andrew can attach connectors for you, quickly and economically. Every factory-made cable assembly is 100% tested to customer requirements before shipment and has a 10-year warranty. For details about this service, contact Andrew.



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Internet: <http://www.andrew.com> Other Europe: +44 1592 782612

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Product Specifications

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L12PDF

7-16 DIN Female for 2-1/4 in LDF12-50 cable

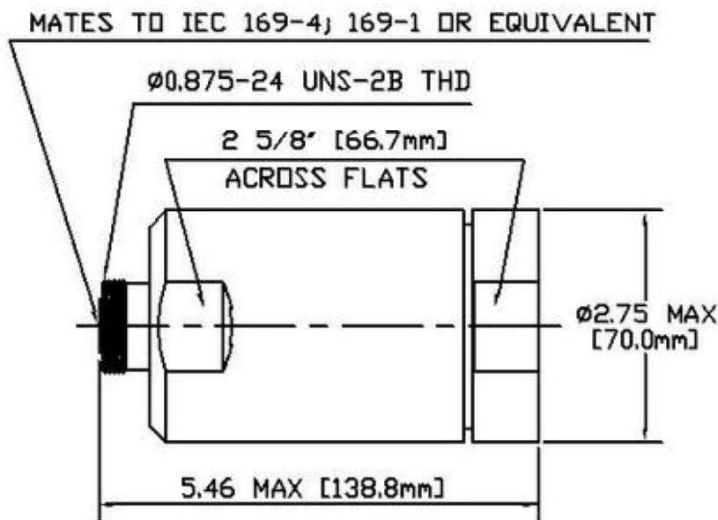
General Specifications

Interface	7-16 DIN Female
Body Style	Straight
Brand	HELIAX®
Mounting Angle	Straight

Electrical Specifications

Connector Impedance	50 ohm
Operating Frequency Band	0 – 2200 MHz
Cable Impedance	50 ohm
RF Operating Voltage, maximum (vrms)	1415.00 V
dc Test Voltage	4000 V
Outer Contact Resistance, maximum	1.50 mOhm
Inner Contact Resistance, maximum	0.80 mOhm
Insulation Resistance, minimum	5000 MOhm
Average Power	3.0 kW @ 900 MHz
Peak Power, maximum	40.00 kW
Insertion Loss, typical	0.05 dB
Shielding Effectiveness	-130 dB

Outline Drawing



Mechanical Specifications

Outer Contact Attachment Method	Self-flare
Inner Contact Attachment Method	Self-tapping
Outer Contact Plating	Silver
Inner Contact Plating	Silver
Attachment Durability	25 cycles
Interface Durability	500 cycles
Interface Durability Method	IEC 61169-16:9.5
Pressurizable	No

Dimensions

Nominal Size	2-1/4 in
Diameter	71.12 mm 2.80 in
Length	139.70 mm 5.50 in
Weight	1542.24 g 3.40 lb

Environmental Specifications

Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Immersion Depth	1 m
Immersion Test Mating	Mated
Immersion Test Method	IEC 60529:2001, IP68
Water Jetting Test Mating	Mated
Water Jetting Test Method	IEC 60529:2001, IP66

Product Specifications

COMMScope®

L12PDF

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Moisture Resistance Test Method	MIL-STD-202F, Method 106F
Mechanical Shock Test Method	MIL-STD-202F, Method 213B, Test Condition C
Thermal Shock Test Method	MIL-STD-202F, Method 107G, Test Condition A-1, Low Temperature -55 °C
Vibration Test Method	MIL-STD-202F, Method 204D, Test Condition B
Corrosion Test Method	MIL-STD-1344A, Method 1001.1, Test Condition A

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
45–1000 MHz	1.07	30.00
1010–1300 MHz	1.09	27.00
1310–2200 MHz	1.15	23.00

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



* Footnotes

Immersion Depth	Immersion at specified depth for 24 hours
Insertion Loss, typical	0.05V _f freq (GHz) (not applicable for elliptical waveguide)

Installation Instructions



Bulletin 237327 Revision E Page 1 of 2

Connectors

for HELIAX® LDF12-50 Coaxial Cable

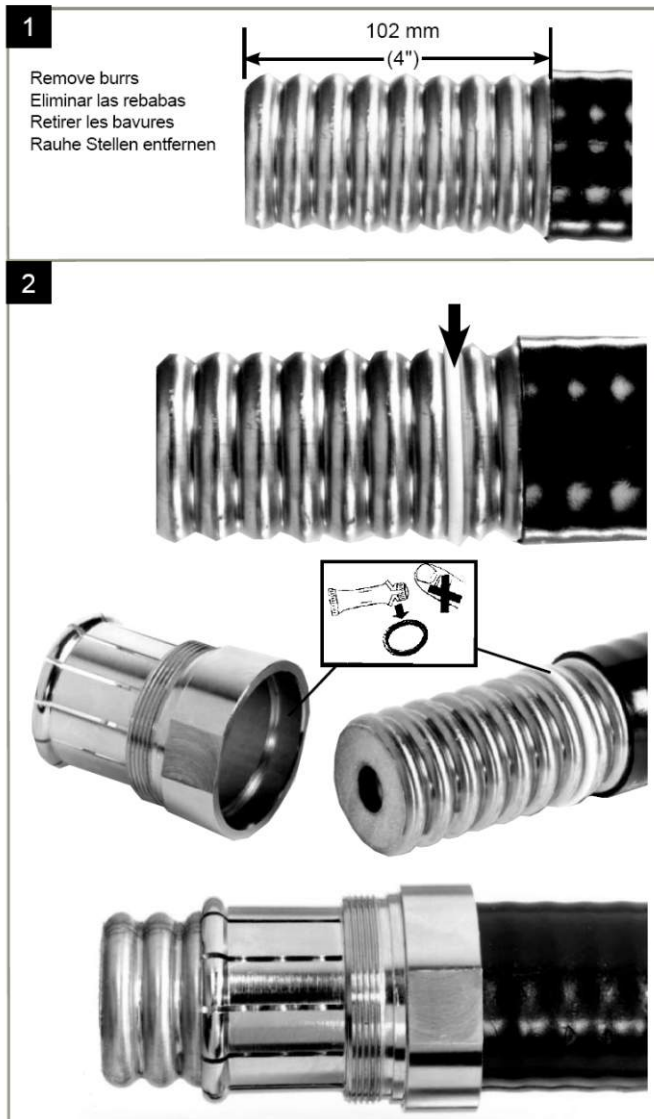
Andrew Institute offers installation training.

N-female
N-hembra
N-femelle
N-Kuppler



U.S. Patent 5,137,470

7-16 DIN-female
7-16 DIN-hembra
7-16 DIN-femelle
7-16 DIN-Kuppler



5

Remove copper particles.
 Remueva las partículas de cobre.
 Ebavurer et enlever les copeaux.
 Kupferpartikel entfernen.



6

Examine for correctly flared outer conductor
 Examinar el abocinado correcto del conductor exterior
 Vérifier l'évasement du conducteur extérieur
 Überprüfen, ob der Außenleiter richtig gebördelt ist

54±10 N·m
 (40±8 lbf·ft)



7



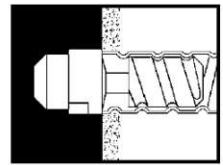
8

Do not remove the stub and reuse in the same section of inner conductor.

No quite la punta roscable y no vuelva a usarla en la misma sección del conductor interno.

Ne retirez pas l'embout et ne le réutilisez pas dans la même section du conducteur.

Den Innenkontakt nicht entfernen und im gleichen Abschnitt des Innenleiters wiederverwenden.



7.5±1.5 lb-ft
 (10±2 N·m)



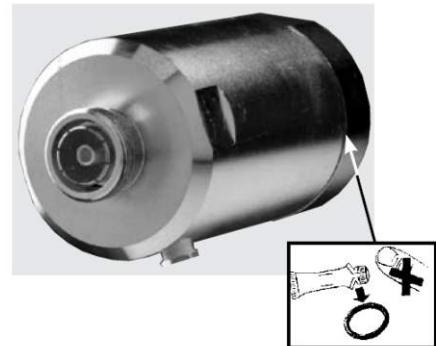
9

Do not remove inner contact from body

No remueva el contacto interno del cuerpo del conector

Ne retirez pas le contact intérieur du corps

Den inneren Kontakt nicht aus dem Gehäuse entfernen



10

54±10 N·m
 (40±8 lbf·ft)



表一 有毒有害物质或元素名称及含量标识格式

有毒有害物质或元素

部件名称 (Part Name)	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
连接器 (Connector)	X	O	O	O	O	O

O: 表示有毒有害物质在该部件所有的均质材料中的含量均在SJ/T 11363-2006规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006规定的限量要求。

Andrew Corporation

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Aviso: Andrews no acepta ninguna obligación ni responsabilidad como resultado de prácticas incorrectas o peligrosas de instalación, inspección, mantenimiento o retiro.

Avis: Andrew décline toute responsabilité pour les conséquences de procédures d'installation, d'inspection, d'entretien ou de retrait incorrectes ou dangereuses.

Hinweis: Andrew lehnt jede Haftung oder Verantwortung für Schäden ab, die aufgrund unsachgemäßer Installation, Überprüfung, Wartung oder Demontage auftreten.

Atenção: A Andrew abdica do direito de toda responsabilidade pelos resultados de práticas inadequadas e sem segurança de instalação, inspeção, manutenção ou remoção.

Avvertenza: Andrew declina eventuali responsabilità derivanti dall'esecuzione di procedure di installazione, ispezione, manutenzione e smontaggio improprie o poco sicure.

注意: Andrew 公司申明對於不恰當或不安全的安裝、檢驗、維修或拆卸操作所導致的後果不負責任。何義務和責任。



AL7E158-PS

1-5/8 in EIA Flange for 1-5/8 in AVA7-50, AL7-50 and LDF7-50 cable

General Specifications

Interface	1-5/8 in EIA Flange
Body Style	Straight
Brand	HELIAX®
Mounting Angle	Straight

Electrical Specifications

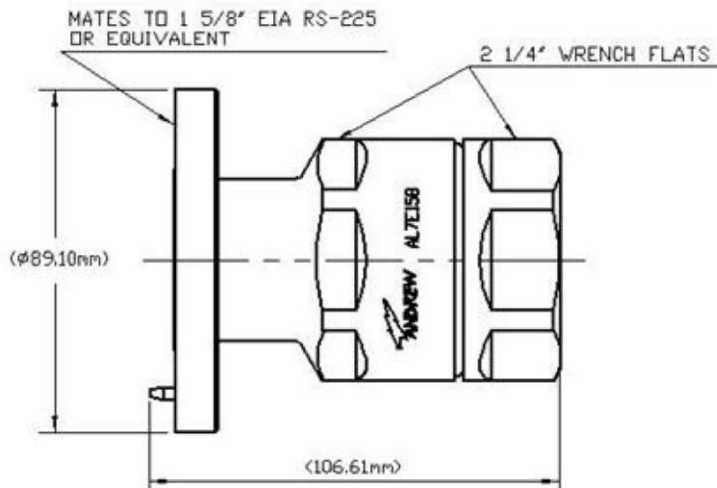
Connector Impedance	50 ohm
Operating Frequency Band	0 – 2500 MHz
Cable Impedance	50 ohm
RF Operating Voltage, maximum (vrms)	2120.00 V
dc Test Voltage	6000 V
Outer Contact Resistance, maximum	1.50 mOhm
Inner Contact Resistance, maximum	1.50 mOhm
Insulation Resistance, minimum	5000 MOhm
Average Power	3.4 kW @ 900 MHz
Peak Power, maximum	90.00 kW
Insertion Loss, typical	0.05 dB
Shielding Effectiveness	-110 dB

AL7E158-PS

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Outline Drawing



Mechanical Specifications

Outer Contact Attachment Method	Self-flare
Inner Contact Attachment Method	Thread-in stub
Outer Contact Plating	Trimetal
Inner Contact Plating	Silver
Attachment Durability	25 cycles
Interface Durability	50 cycles
Connector Retention Tensile Force	2224 N 500 lbf
Connector Retention Torque	13.56 N-m 120.00 in lb
Pressurizable	No

Dimensions

Nominal Size	1-5/8 in
Diameter	89.10 mm 3.51 in
Length	106.61 mm 4.20 in
Weight	1097.40 g 2.42 lb

Environmental Specifications

Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Immersion Depth	1 m
Immersion Test Mating	Mated
Immersion Test Method	IEC 60529:2001, IP68
Water Jetting Test Mating	Mated

Product Specifications

COMMScope®

AL7E158-PS

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Water Jetting Test Method	IEC 60529:2001, IP66
Moisture Resistance Test Method	MIL-STD-202, Method 106
Mechanical Shock Test Method	MIL-STD-202, Method 213, Test Condition I
Thermal Shock Test Method	MIL-STD-202F, Method 107G, Test Condition A-1, Low Temperature -55 °C
Vibration Test Method	MIL-STD-202, Method 204, Test Condition B
Corrosion Test Method	MIL-STD-1344A, Method 1001.1, Test Condition A

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
45–1000 MHz	1.04	35.00
1010–2200 MHz	1.04	35.00
2210–2500 MHz	1.07	30.00

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



* Footnotes

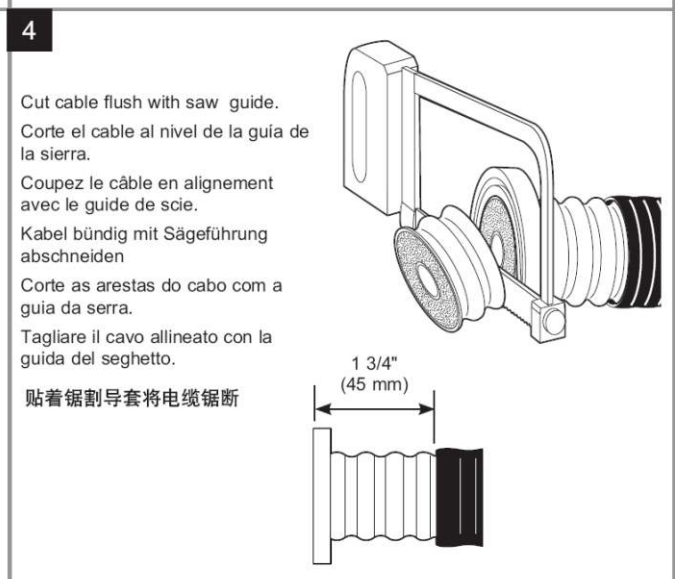
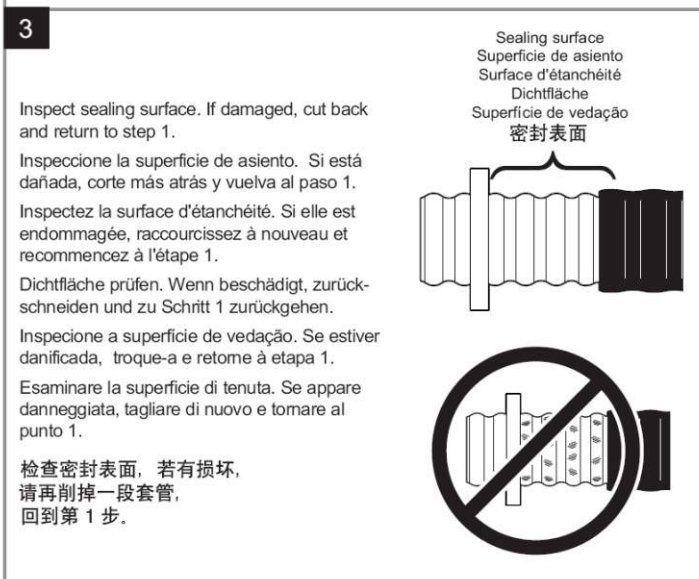
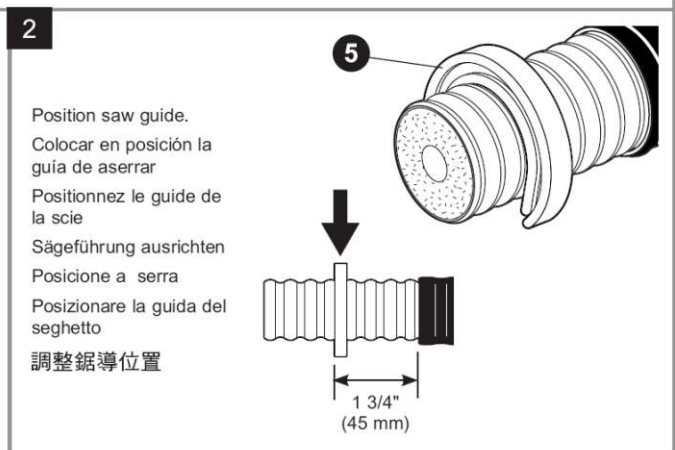
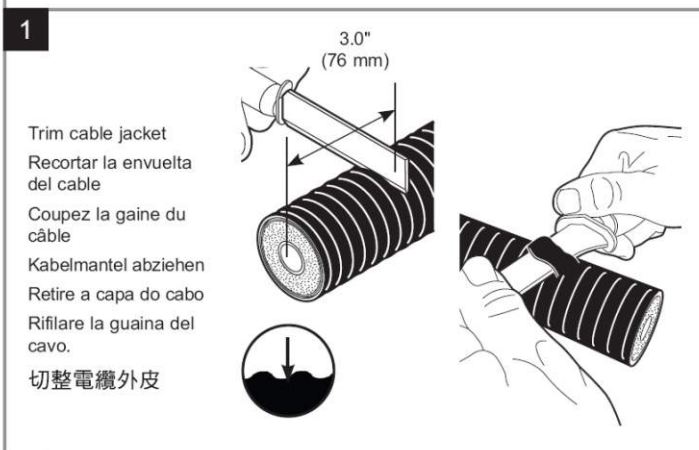
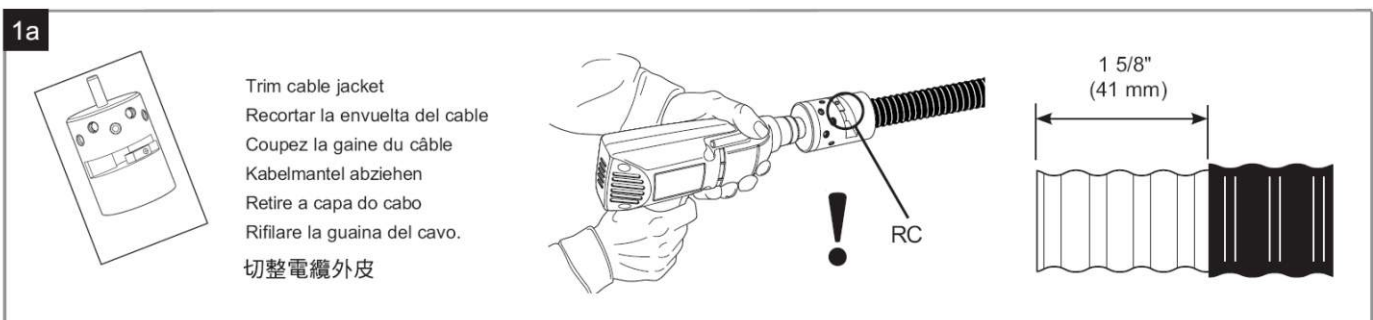
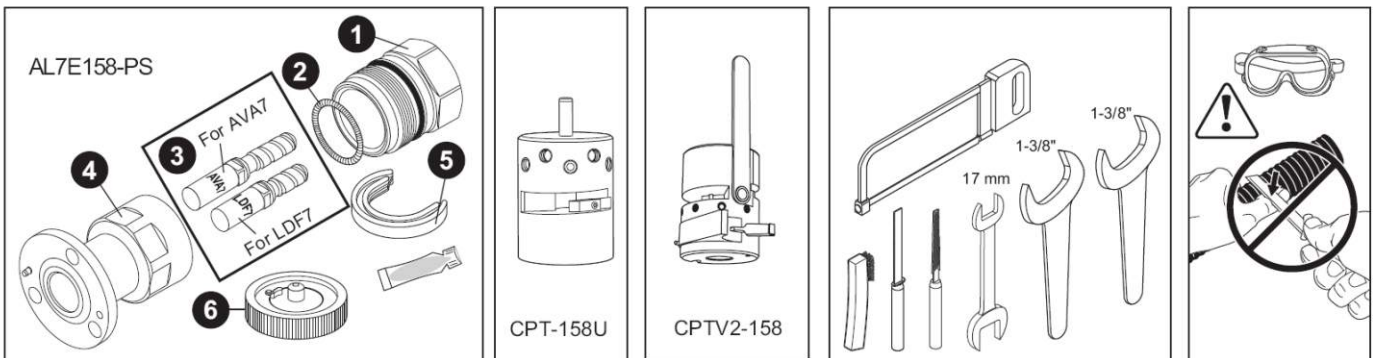
Immersion Depth	Immersion at specified depth for 24 hours
Insertion Loss, typical	0.05V _f freq (GHz) (not applicable for elliptical waveguide)

Installation Instructions

1 5/8" EIA Positive Stop™ Connectors for HELIAX® Coaxial Cable

Bulletin 7577882 Revision B Page 1 of 2

Andrew Institute offers installation training.



5

Deburr
Quitar las virutas
Ebavurez
Entgraten
Tirar as rebarbas
Sbavare
去毛刺

Inside edge, inner conductor
Borde interior, conductor interno
Bord interne, conducteur intérieur
Innenkante, Innenleiter
Borda interna, conduttore interno
Bordo interno, conduttore interno
内缘, 内导体

Inside edge, outer conductor
Borde exterior, conductor externo
Bord externe, conducteur extérieur
Außenkante, Außenleiter
Borda externa, conduttore esterno
Bordo esterno, conduttore esterno
外缘, 外导体

Be sure outer conductor is round and undistorted
Asegúrese de que el conductor externo es circular y no está deformado
Vérifiez si le conducteur extérieur a conservé sa forme ronde, sans distorsion
Außenleiter muss rund und nicht verformt sein. Verifique se o condutor externo está redondo e se não está deformado
Verificare che il conduttore esterno sia tondo e non deformato
外导体必须呈圆形, 且没有变形

6

Remove debris.
Retirar los restos.
Enlevez les débris.
Metallspäne entfernen.
Remova os detritos.
去除殘渣

7

Add clamping nut.
Añadir la tuerca sujetadora.
Mettez en place l'écrou de serrage.
Klemmutter montieren.
Acrescente a porca de aperto.
加緊固螺母

8

Add spring ring.
Añadir el anillo elástico.
Mettez en place la bague ressort.
Federring montieren.
Acrescente o anel de mola.
加彈簧圈

9

Compress foam.
Comprimir el material de espuma.
Comprimez la mousse
Verschäumung zusammendrücken.
Comprima a espuma.
壓緊泡沫塑:

1/8" (3 mm) minimum
Mínimo 1/8" (3 mm)
1/8" (3 mm) minimum
Mind. 1/8" (3 mm)
Mínimo de 1/8" (3 mm)
Mínimo 1/8" (3 mm)

10 Choose correct contact for cable type, refer to page 1

Tighten the stub until it contacts the end of the inner conductor.
Apretar el vástago hasta que toque el fondo del conductor interno.
Serrez l'embout jusqu'à ce qu'il touche l'extrémité du conducteur intérieur.
Stutzen festziehen, bis er das Ende des Innenleiters berührt.
Aperte a ponta até encostar na extremidade do condutor interno.
擰緊卡頭直到它接觸內導體端部。

11

Attach connector to body.
Añadir el cuerpo del conector.
Fixez le corp du connecteur.
Steckergehäuse befestigen.
Coloque o corpo do conector.
清理毛刺和碎屑

12

	表一 有毒有害物质或元素名称及含量标识格式					
	有毒有害物质或元素					
部件名称 (Part Name)	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
连接器 (Connector)	X	O	O	O	O	O

O: 表示有毒有害物质在该部件所有的均质材料中的含量均在SJ/T 11363-2006规定的限量要求以下。
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006规定的限量要求。

Andrew Wireless Solutions

Customer Service 24 hours

U.S.A., Canada, Mexico:
for HELIAX® A/V, VXL Cables call 1-800-255-1479
for HELIAX® SFX, FXL Cables call 1-888-235-5732
U.K.: 0800 250055
Other Europe: +44 592 782 612

www.commscope.com

Visit our Web site at www.commscope.com or contact your local Andrew Wireless Solutions representative for more information.

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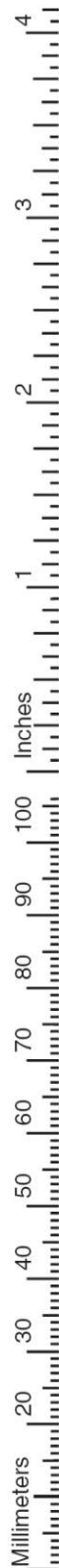
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L4E78-PS**7/8 in EIA Flange Positive Stop™ for 1/2 in LDF4-50A cable**

General Specifications

Interface	7/8 in EIA Flange
Body Style	Straight
Brand	HELIAX®
Mounting Angle	Straight

Electrical Specifications

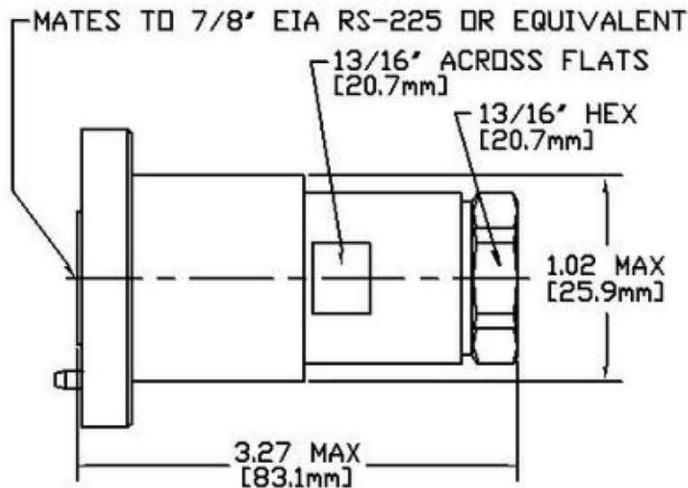
Operating Frequency Band	0 – 5200 MHz
Cable Impedance	50 ohm
RF Operating Voltage, maximum (vrms)	2120.00 V
dc Test Voltage	6000 V
Outer Contact Resistance, maximum	1.50 mOhm
Inner Contact Resistance, maximum	1.50 mOhm
Insulation Resistance, minimum	5000 MOhm
Average Power	2.3 kW @ 900 MHz
Peak Power, maximum	90.00 kW
Insertion Loss, typical	0.05 dB
Shielding Effectiveness	-110 dB

L4E78-PS

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Outline Drawing



Mechanical Specifications

Outer Contact Attachment Method	Self-flare
Inner Contact Attachment Method	Solder
Outer Contact Plating	Unplated
Inner Contact Plating	Unplated
Attachment Durability	25 cycles
Connector Retention Tensile Force	890 N 200 lbf
Connector Retention Torque	8.13 N-m 72.00 in lb
Pressurizable	No
Coupling Nut Proof Torque	24.86 N-m 220.00 in lb

Dimensions

Nominal Size	1/2 in
Diameter	56.93 mm 2.24 in
Length	90.37 mm 3.56 in
Weight	227.52 g 0.50 lb

Environmental Specifications

Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Immersion Depth	1 m
Immersion Test Mating	Mated
Immersion Test Method	IEC 60529:2001, IP68
Water Jetting Test Mating	Mated

Product Specifications

COMMScope®

L4E78-PS

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Water Jetting Test Method	IEC 60529:2001, IP66
Moisture Resistance Test Method	MIL-STD-202, Method 106
Mechanical Shock Test Method	MIL-STD-202, Method 213, Test Condition I
Thermal Shock Test Method	MIL-STD-202F, Method 107G, Test Condition A-1, Low Temperature -55 °C
Vibration Test Method	MIL-STD-202, Method 204, Test Condition B
Corrosion Test Method	MIL-STD-1344A, Method 1001.1, Test Condition A

Standard Conditions

Attenuation, Ambient Temperature	20 °C 68 °F
Average Power, Ambient Temperature	40 °C 104 °F

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
45–1000 MHz	1.05	32.00
1010–2200 MHz	1.11	26.00
2210–3000 MHz	1.13	24.00
3010–4000 MHz	1.15	23.00
4010–5000 MHz	1.17	22.00
5010–7000 MHz	1.22	20.00
7010–8000 MHz	1.33	17.00
8010–8800 MHz	1.78	11.00

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)

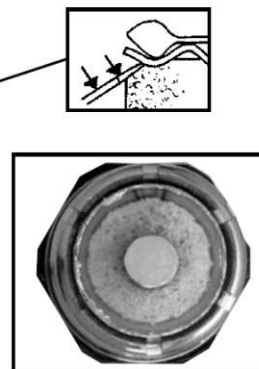
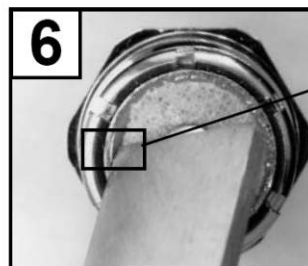
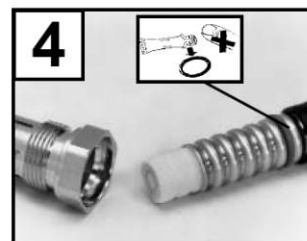
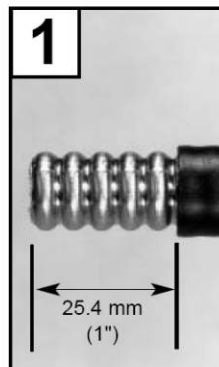


* Footnotes

Immersion Depth	Immersion at specified depth for 24 hours
Insertion Loss, typical	0.05V _{freq} (GHz) (not applicable for elliptical waveguide)

Connector Attachment

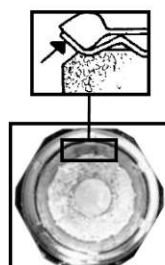
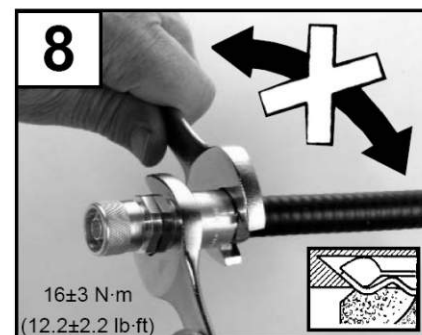
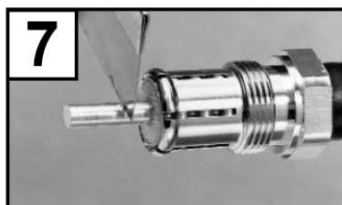
for HELIAX® LDF4-50A Coaxial Cable



Remove foam and adhesive.
Retirar el material de espuma y el adhesivo.
Enlevez la mousse et l'adhésif.
Verschäumung und Klebeband entfernen.

Compress foam.
Comprimir el material de espuma.
Comprimez la mousse.
Verschäumung zusammendrücken.
Comprima a espuma.
Comprimere la schiuma.

壓緊泡沫塑料



Flare outer conductor, examine flare, remove debris

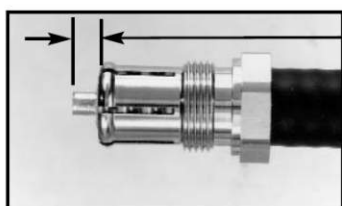
Acampanar el conductor externo, examinar la forma de campana y retirar los restos

Evasez le conducteur extérieur, examinez l'évasement et enlevez les débris

Außenleiter aufweiten, Öffnung prüfen und Metallspäne entfernen.

Flangear o conductor externo, examinar o flangeamento e remover os detritos.

Svasare il conduttore esterno, verificare la svasatura, eliminare i detriti
擴張外導體，檢查擴張表面，去除殘骸



HN, End terminal: 5 mm (7/32")
UHF: 8 mm (5/16")
7/8" EIA-flange: 10 mm (3/8")
F-flange: 11 mm (7/16")

Installation Training Available at Andrew Institute





Solder pin, cut off excess solder, and add O-ring and grease.

Soldar la clavija, recortar el exceso de material para soldar, añadir la junta tórica y la grasa.

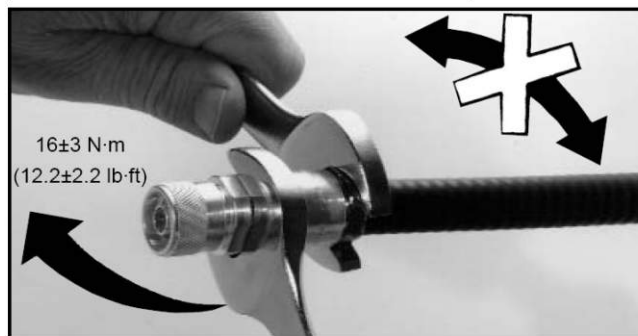
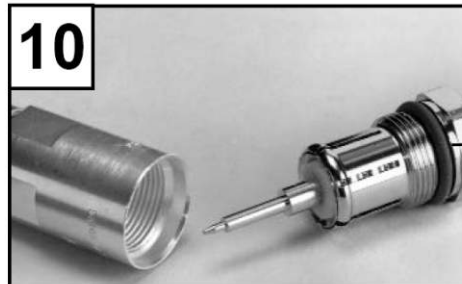
Soudez la broche, coupez l'excès de soudure, ajoutez un joint torique et graissez.

Stift löten, überschüssiges Lötmetall entfernen, O-Ring vor Montage einfetten.

Solde o pino corte o excesso de estanho. Acrescente o anel em O ring e aplique graxa.

Saldare il perno, tagliare la saldatura in eccesso. Aggiungere l'O-ring e il grasso

焊接銷針，切除多余的焊錫，加 O 型圈和油脂



Reassemble connector.

Réassemblez le connecteur.

Reinstale o conector.

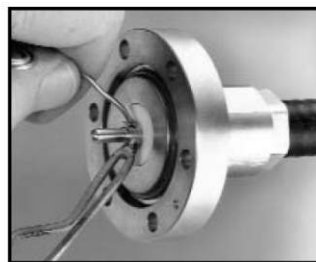
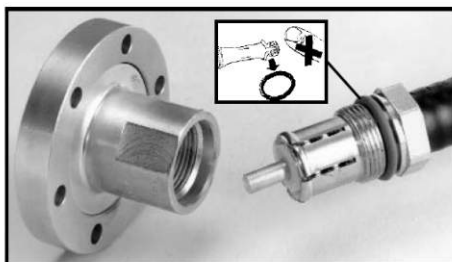
重新裝配接頭

Montar nuevamente el conector.

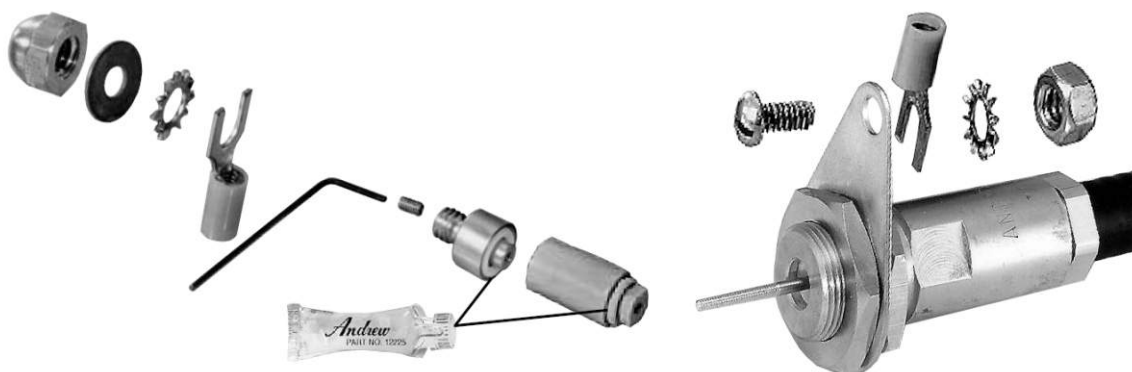
Steckverbindung wieder zusammenbauen.

Rimontare il connettore.

F-Flange Male:



End Terminal:



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This product may be covered by one or more of the following patents, or other patents pending.

United States 5,154,636; 5,137,470; 5,354,217; 5,344,051; 5,435,745; 5,595,502; 5,795,188; 6,109,964

Switzerland, Spain, France, United Kingdom 0 495 467; Germany P692 13 034 9; p692 14 199 5; Italy 70,732-BE/96; 71,436-BE/96; Australia 668,812; 722,407



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34759
Lace-up Hoisting Grip for 4 in coaxial cable and elliptical waveguide 17 and 20

Dimensions

Nominal Size	4 in
Grip Length, minimum	965.20 mm 38.00 in
Leader Length, minimum	508.00 mm 20.00 in
Waveguide Size	WR430 WG8 R22

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Tool Type	Hoisting grip
Hoisting Grip Type	Lace-up hoisting grip
Attachment Spacing Intervals	61 m 200 ft
Cable Type	Corrugated Elliptical waveguide
Material Type	Tin-coated bronze
Package Quantity	1
Support Clamp	Not included

Mechanical Specifications

Pull Load Capacity	500 lb
--------------------	--------

Packed Dimensions

Shipping Weight	1.56 kg 3.44 lb
-----------------	-------------------

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

COMMScope®



26985A
Lace-up Hoisting Grip for 3 in coaxial cable and elliptical waveguide 28 and 34

Dimensions

Nominal Size	3 in
Grip Length, minimum	762.00 mm 30.00 in
Leader Length, minimum	457.20 mm 18.00 in
Waveguide Size	WR229 WG11 R40

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Tool Type	Hoisting grip
Hoisting Grip Type	Lace-up hoisting grip
Attachment Spacing Intervals	61 m 200 ft
Cable Type	Corrugated Elliptical waveguide
Material Type	Tin-coated bronze
Package Quantity	1
Support Clamp	Not included

Mechanical Specifications

Pull Load Capacity	500 lb
--------------------	--------

Packed Dimensions

Shipping Weight	1.43 kg 3.15 lb
-----------------	-------------------

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Hoisting Grips

for HELIAX® Coaxial, Hybrid FiberFeed and Elliptical Waveguide

Bulletin 17262G, Revision M page 1 of 24

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*CommScope Infrastructure Academy offers on-line installation training and certifications.*

Multiple translations are available (Spanish, French, German, Italian, Portuguese).

Para ver las instrucciones de instalación en español escanea este código QR o pega el enlace en el navegador.

Pour les instructions d'installation en français, merci de scanner le code QR ou de taper le lien dans la barre de recherche de votre navigateur.

Für Installationsanweisungen auf Deutsch scannen Sie bitte den QR-Code auf dieser Seite ein oder fügen den Link in Ihren Browser ein.

Per le istruzioni di installazione in italiano, fare la scansione di questo codice QR o immettere il link nel browser.

Para obter as instruções de instalação em português, leia este código QR ou introduza a ligação no seu browser.

www.commscope.com/IB17262G

READ ALL WARNINGS AND INSTRUCTIONS BEFORE INSTALLATION**WARNING**

The following warnings alert you to possible dangers in misusing this product. Failure to obey a warning may result in injury or death to you or to others.

- **Do not use one hoisting grip for hoisting two or more cables or waveguides.** This can cause the hoisting grip to break and the cables or waveguides to fall.
- **Do not use the hoisting grip for lowering cable or waveguide.** Snagging of the cable or waveguide may loosen the grip and possibly cause the cable and waveguide to sway or fall.
- **Do not reuse hoisting grips.** Used grips may have lost elasticity, stretched, or become weakened. Reusing a grip can cause the cable or waveguide to slip, break, or fall.
- **Use hoisting grips at intervals of no more than 200 ft (60 m).**
- **Make sure that the proper hoisting grip is used for the cable or waveguide being installed.** Slippage or insufficient gripping strength will result if you are using the wrong hoisting grip.
- **⚠ Hybrid Fiberfeed and Power Cables weigh more than traditional coaxial cables.** Be sure to verify cable weight for proper hoisting considerations.

See table on this page for proper grip part number based on cable diameters.

Hoisting Grip Recommendations

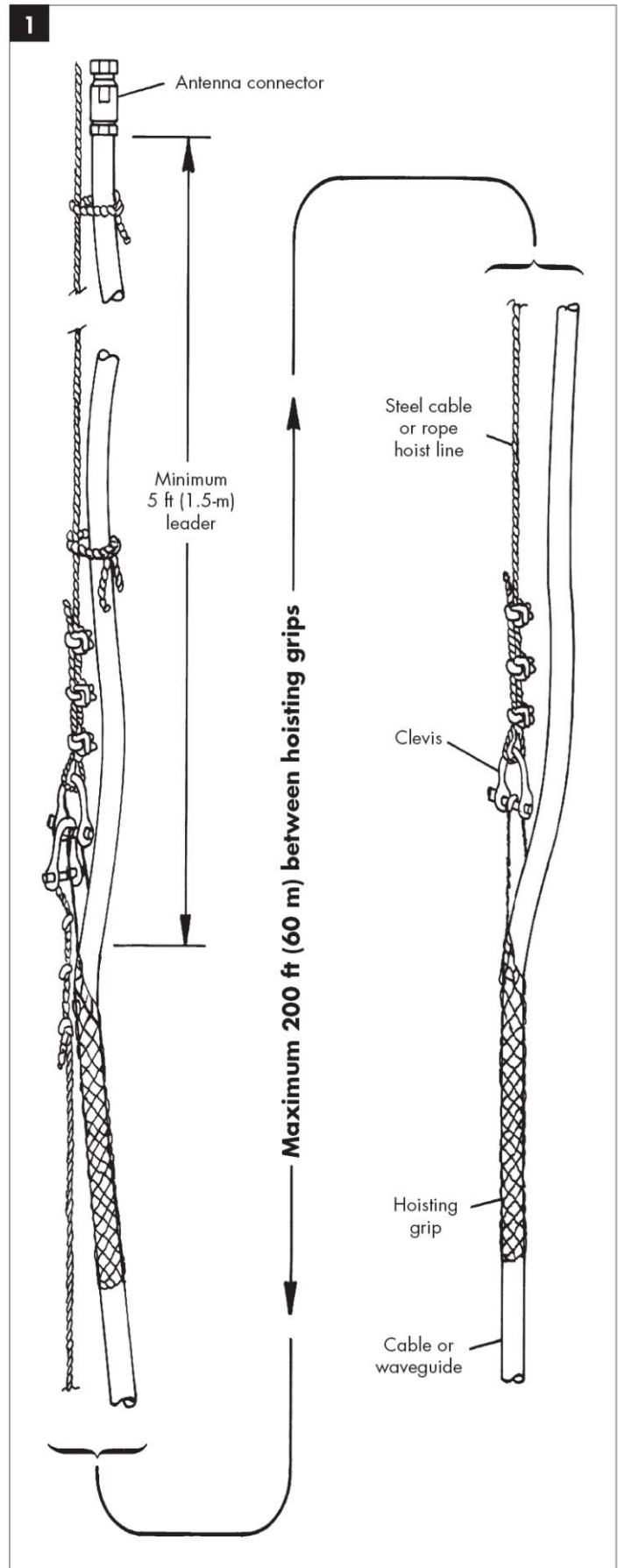
Hoisting Grip	HELIAX® Coaxial Cable Size	HELIAX® FiberFeed	Power Cable	HELIAX® Elliptical Waveguide
43094	1/2"			EW180/220/240, EWP180
LUHG-38	3/8"	RFFT-36SM-001, RFFT-24SM-001		
29958	5/8"	RFA812	PWR 608	EW85/90/127A/132, EWP90/90S/127A/132
19256B	7/8"	RFA810		EW77, EWP77
19256B-C	7/8"	RFA808, RFA806, RFA1608, RFA1206		
29961	1 1/4"			EW64, EWP64
24312A	1 5/8"			EW52/63, EWP52/52S/63/63S
31535	2 1/4"			EW37/43, EWP37/37S/43
26985A	3"			EW28/34, EWP34
34759	4"			EW17/20, EWP17
31031-1	5"			

Description

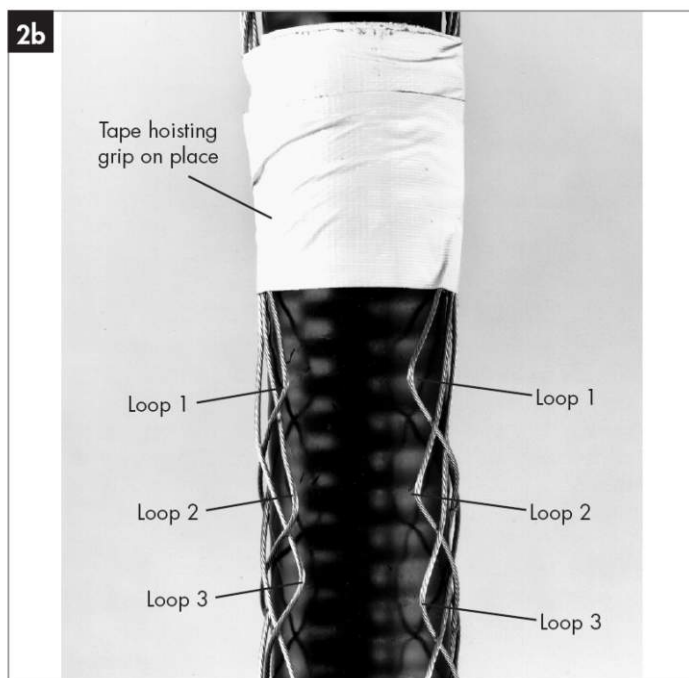
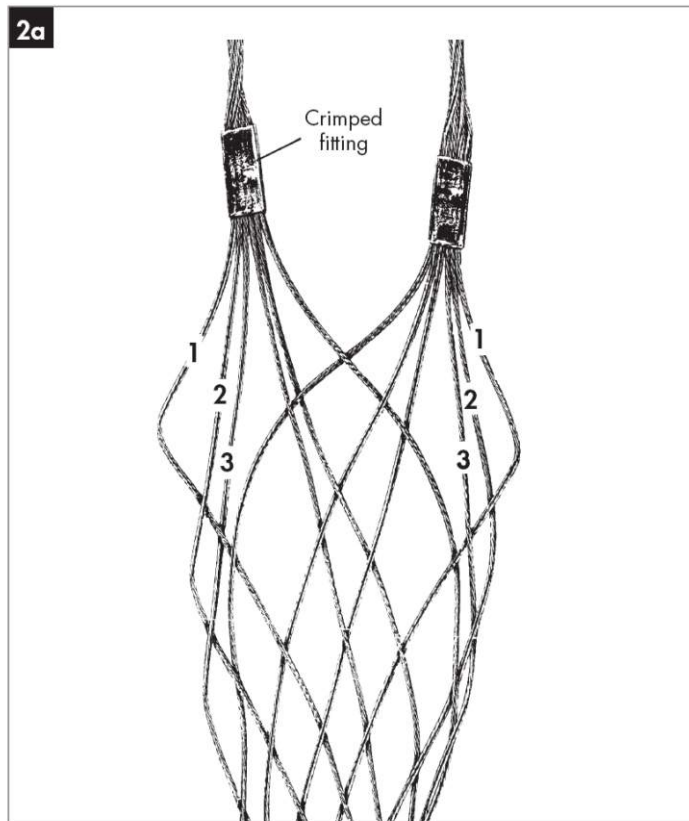
Hoisting grips are designed for hoisting cable or waveguide safely up a tower so that mechanical connection to an antenna can be made. The grip is split and must be laced together on the cable or waveguide.

When the cable or waveguide is in position and fastened to the tower members, the hoist line can be removed. The hoisting grip should be attached to the tower as additional support for the cable or waveguide.

- 1 Place the hoisting grip at the proper location on the cable or waveguide as shown in Figure 1. Allow a sufficient length of cable or waveguide leader between the connector and the grip to reach the antenna input when hoisting is completed.



2 Identify the first three loop pairs to be laced at the crimped fittings as shown in Figure 2a. Make sure the loops are not tangled. It is important that the loop pairs are correctly matched to ensure maximum gripping strength. Then tape both crimped fittings to the cable or waveguide as shown in Figure 2b. This will align the loop pairs of the hoisting grip and aid in lacing.



3 Fold the lace in half to form a crease at the center. Starting at the top, pass the lace through the first loop pair so that the crease is between them as shown in Figure 3a. Cross the lace ends and pass them through the second loop pair from the underside and pull at right angles in the same way as lacing a shoe (see Figure 3b).



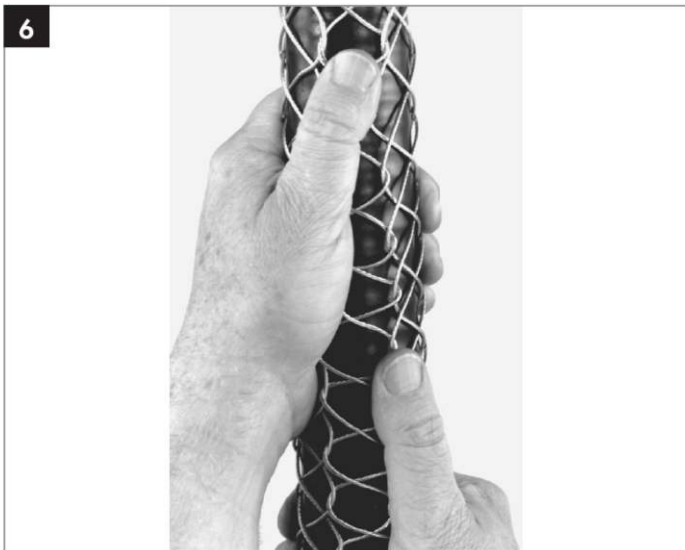
4 Continue lacing so that the seam is straight and the lace is pulled so that the space between both sides of the seam is no greater than the spaces of the mesh next to the loop. See Figure 4. **Do not skip any loop pairs of the grip when lacing;** this will weaken the hoisting grip. The grip can be compressed from bottom to top to simplify lacing.



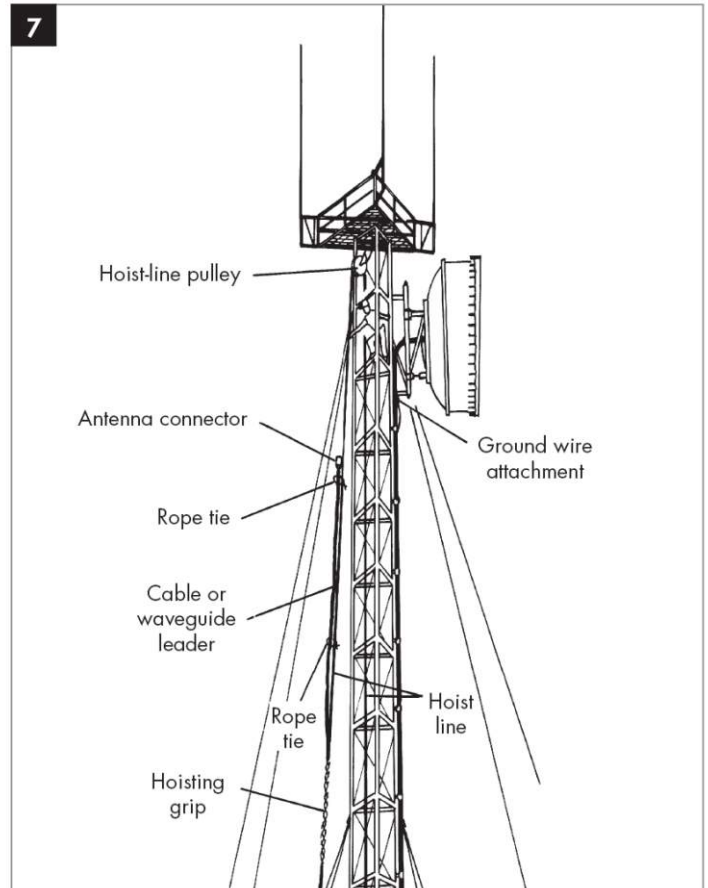
5 Tightly twist the lacing together several times at the end of the seam as shown in Figure 5a. Wrap the lace around the hoisting grip, twist it together, and thread the remainder of lace through grip as shown in Figure 5b. **Do not tie knots with the lace because they will not hold!**



6 IMPORTANT: First, remove the tape from the tip of the hoisting grip. Then, place both hands firmly around the bottom of the grip and slide them upward to the top as shown in Figure 6. This pulling action removes slack throughout the grip. Repeat this twice.



7 Attach the hoist line to the grip as shown in Figure 7. Tie the cable or waveguide leader to the hoist line so that the leader does not dangle. Apply tension slowly to the hoist line to allow the hoisting grip to tighten uniformly on the cable or waveguide.



WARNING

Maintain tension on the hoisting grip during hoisting. Loss of tension can cause dangerous movement of the cable or waveguide and result in injury or death to you or others on or near the tower. Also, do not release tension on the grip until after the cable or waveguide has been fastened to the tower members.

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**INSTALLATION
INSTRUCTIONS****HELIAX® Coaxial Cables****ANDREW****3, 4 and 5-Inch**

Air dielectric cable is supplied pressurized in bulk quantities and when furnished with factory attached connectors. An air inlet valve is included with each pressurized length. Inner connectors, gaskets, silicone grease, connecting hardware and assembly instructions are packed with unattached connectors.

NOMINAL DIAMETER IN INCHES	MAJOR DIAMETER OVER JACKET IN INCHES (MM)	CABLE WEIGHT		RADIUS OF MINIMUM BEND IN INCHES (MILLIMETERS)	INTERNAL VOLUME	
		LB/FT	KG/M		FT ³ 1000 FT	(LITRES) 1000 M
3	3.02 (76.6)	1.78	(2.6)	30 (762)	36.7	(3410)
4	4.00 (102)	2.50	(3.7)	40 (1016)	69.9	(6494)
5	5.20 (133)	3.3	(4.9)	50 (1270)	117	(10870)

READ INSTRUCTIONS THOROUGHLY BEFORE ASSEMBLY**1. PREPARATION AND INSPECTION**

Inspect cable for possible shipping damage and pressure loss. Cable and connector assemblies have been pressure tested at factory before shipping. Maximum allowable pressure drop for assembly over 25 ft (7.6 m) is 1 lb/in² (7 kPa) in 24 hours from initial pressure of 20 lb/in² (140 kPa). For shorter assembly, allowable pressure drop is 1 lb/in² in 24 hours from an initial pressure of 12 lb/in² (83 kPa). Each assembly is pressurized with dry air to 10 lb/in² (70 kPa) prior to shipping and result of factory pressure test is recorded on inspection tag tied to assembly. Tire gauge can be used to check pressure. If cable has pressure loss, check all joints for possible leaks especially at pipe threads. Refer to

Section 6 for pressure information. Notify Andrew Service Department if leaky condition cannot be corrected. Do not install cable if pressure loss is in excess of standard rates stated.

Factory attached connectors are shipped with metal caps attached to maintain pressure during shipment. Do not remove metal cap until after cable is installed. When bulk cable is used, field attachment of connector at antenna end must be completed before hoisting. Attach connector to end of cable in accordance with connector instructions received. Pressure test assembly prior to hoisting.

2. HOISTING

Obtain suitable hoist line to support weight of cable. Refer to table for weights per 1-foot lengths. Winch is essential for hoisting large diameter cable. Provide pulley high enough on tower to allow cable to be raised sufficiently to make antenna connection. Make certain winch and pulley can handle weight. Support reel on axle to permit free rotation as cable

is hoisted. Method illustrated (cable pays off top) is safest for heavily loaded reels. For lighter loads, less than 1000 lbs (450 kg) gross weight, which can be braked by hand, reel can be positioned 180 degrees opposite so cable pays off from bottom of reel. Uncoil short lengths not on reels along ground and away from tower.

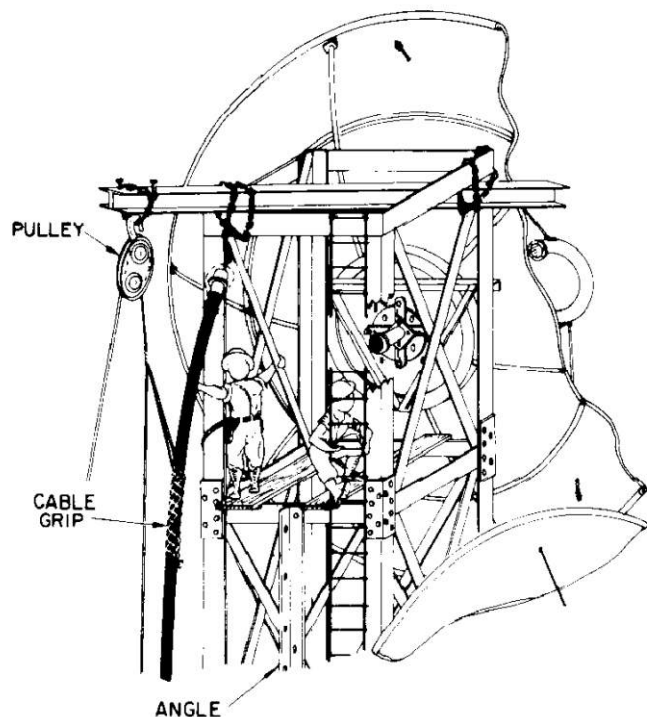
NOTICE

The installation, maintenance or removal of antenna systems requires qualified, experienced personnel. Andrew installation instructions have been written for such installation 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.

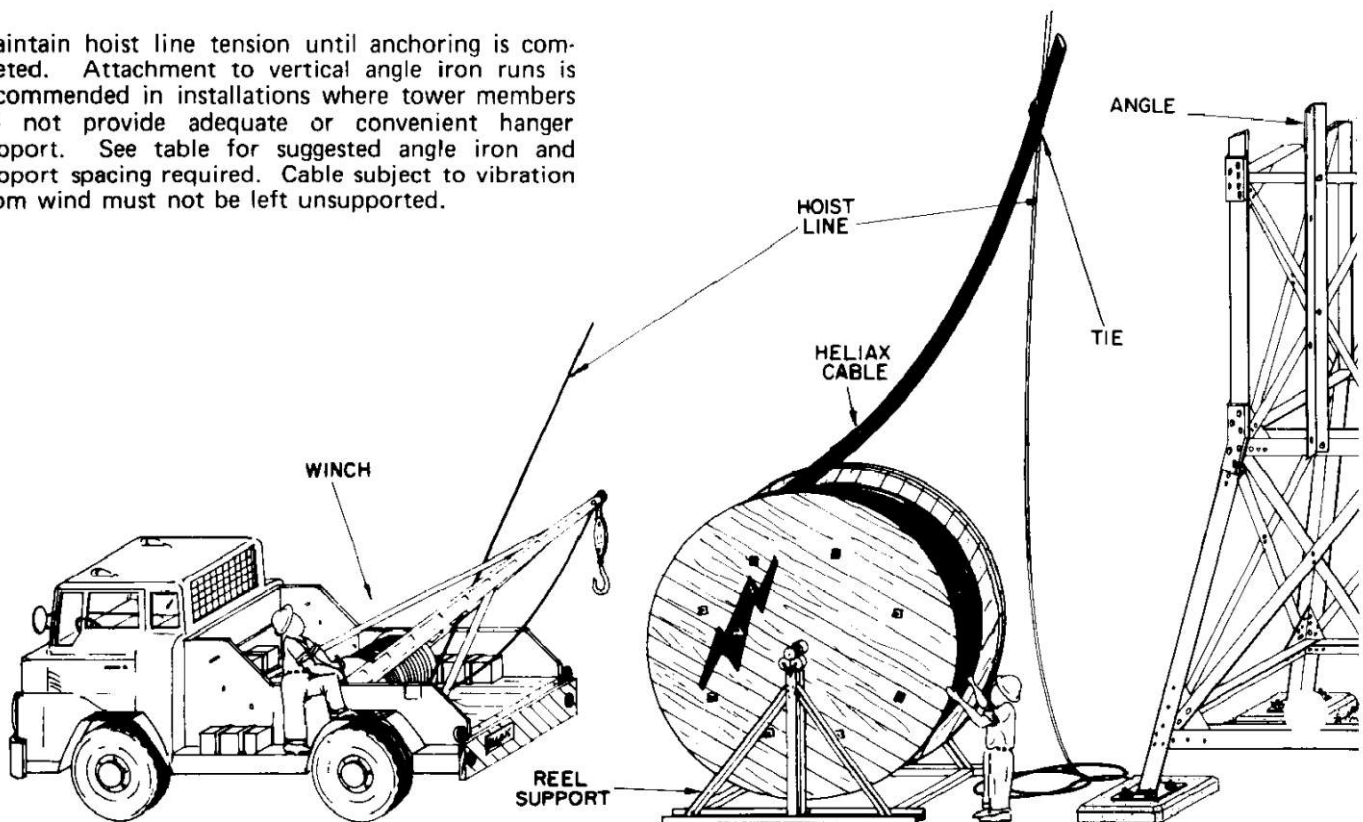
Place protective covering over connector to prevent damage during hoisting. Attach rope sling or cable grip near end of cable allowing sufficient length to reach antenna input from hoisted cable position. Tie end of cable to hoist line to keep from dangling. Rope sling may be used in lieu of cable grip for very short lengths. Use cable grips in accordance with instructions received. When installing lengths more than 200-ft (61 m), additional cable grips at 150 to 200-ft (46 to 61 m) intervals are required. Additional tying is done above and below cable grips to keep weight on hoist line and not on cable. Make certain to allow slack in cable when tying and that slack is maintained during hoisting. Tying is accomplished with strong fiber-reinforced tape or similar material applied generously at 50-ft (15.2 m) intervals as cable is raised.

Hoist cable slowly. To prevent kinking, rotation of reel must be retarded to control payout of cable. Avoid snags when hoisting or routing cable through and around tower members. Careless handling can cause kinks, dents, and scrapes. Do not make bends shorter than minimum bending radius shown in table. Care must be taken to apply an even pressure when forming cable. When routing is confined and shorter bends are required, an elbow or flex section should be used.



3. ANCHORING

Maintain hoist line tension until anchoring is completed. Attachment to vertical angle iron runs is recommended in installations where tower members do not provide adequate or convenient hanger support. See table for suggested angle iron and support spacing required. Cable subject to vibration from wind must not be left unsupported.



CABLE DIAMETER	ANGLE IRON IN (MM)	SUPPORT SPACING FT (M)	BOLT SIZE
3"	2 x 2 x 3/16 (51 x 51 x 5)	8 (2.4)	1/2"
4"	3 x 3 x 1/4 (76 x 76 x 6)	12 (3.7)	1/2"
5"	3 1/2 x 3 1/2 x 1/4 (89 x 89 x 6)	15 (4.6)	1/2"

Space hangers approximately 2-ft (0.6 m) apart for first three at top of vertical run and 5-ft (1.5 m) apart thereafter. If distance from feed termination to first hanger is more than 5-ft, cable must be supported. Position hangers to hold cable away from tower members. Rubbing against edges can cause damage. Do not tighten hangers excessively as dents or deformations can cause degradation in electrical performance. Follow hanger instructions included with hangers. If jacket has been cut, apply vinyl tape to damaged area.

Top and bottom of cable should be grounded to tower by low impedance conductors or to a suitable "down" conductor physically separated from cable if tower is non-metallic. Antenna input connection cannot serve as top ground. Cable itself must be grounded close to antenna. Cable should be grounded at point where it enters equipment building especially for long horizontal run. Some installers ground cable every 50-ft (15.2 m) along entire run. Local building codes should be followed. Grounds planned for 50 foot intervals can be prepared during hoisting operation.

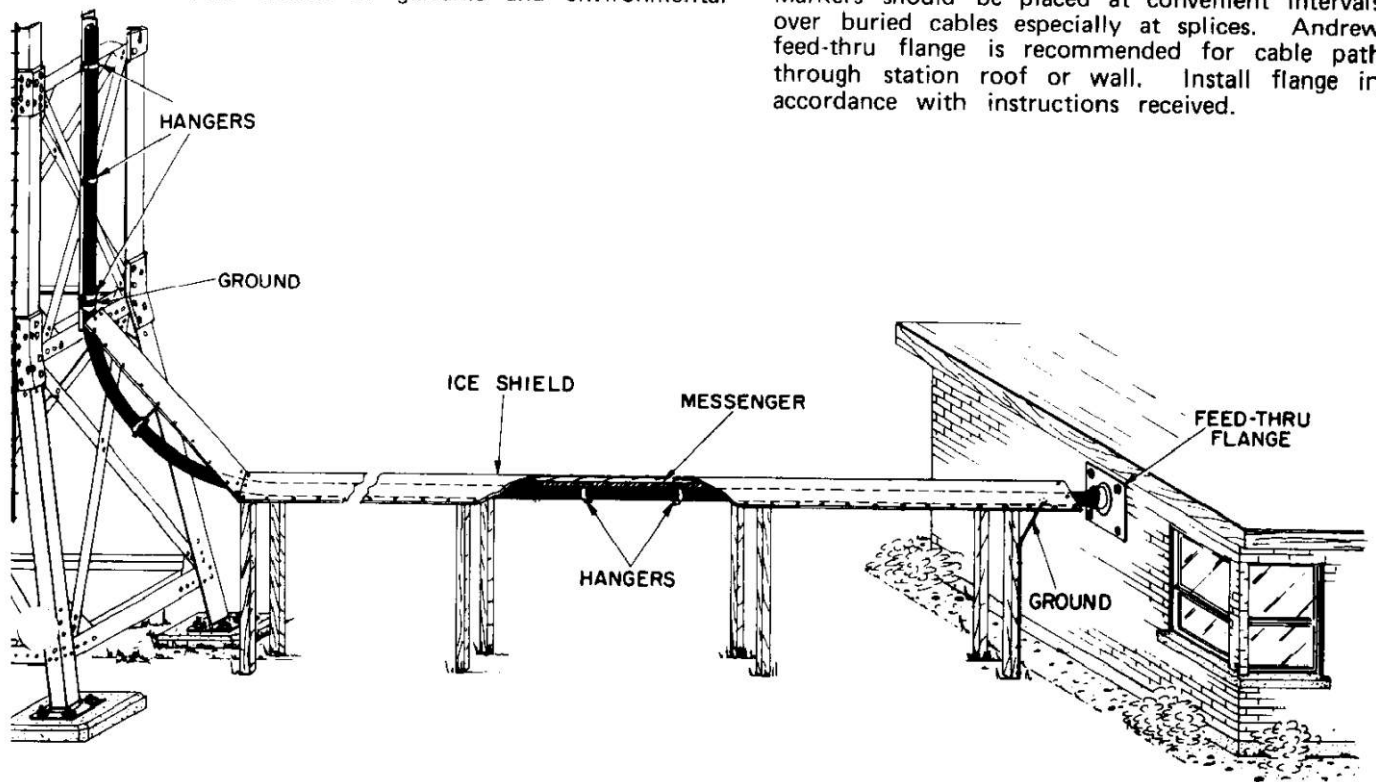
4. HORIZONTAL RUNS

Route cable from base of tower to station. It can be buried or supported above ground. Attach above-ground cable to horizontal support member using same type hangers and 5-ft intervals as in vertical run. Exposed horizontal runs must be protected from weight of accumulated ice and damage from falling ice or other objects.

HELIAX jacketed cables can be used in any environment such as salt air, direct burial or underwater. Jacket eliminates effects of galvanic and environmental

corrosive action. Buried cable should be below area frost line and at least 3-ft (0.9 m) deep for protection against damage from heavy vehicles. A 4 in (102 mm) layer of sand under and over buried cable is adequate to protect jacket from stones or other sharp objects.

Splices on buried jacketed cables must be thoroughly covered with plastic cement and tape. Refer to instructions contained in Andrew splice wrap kit. Markers should be placed at convenient intervals over buried cables especially at splices. Andrew feed-thru flange is recommended for cable path through station roof or wall. Install flange in accordance with instructions received.



5. CABLE CONNECTIONS

Remove protective covering from ends of cable. If there are flange terminations, remove metal caps attached for shipment. Before cable connections are begun, continuity check should be made. Make short circuit across inner and outer conductors at one end of cable. An ohmmeter across conductors at opposite end should read at least 1000 megohms when short circuit is removed.

Attach cable connector directly to antenna input or to elbow or flex section if required, to make necessary alignment with mating flange. To make flange connection at antenna end of cable, start by seating an "O" ring into groove of cable connector. "O" ring and mating surfaces of flanges must be perfectly clean to insure pressure-tight connection. Use comothene, vythene, or other non-flammable fluid on clean cloth. Thin coating of silicone grease on the "O" ring and in grooves will aid in keeping ring in place. Push cable into position so end of inner connector, extending from cable connector, engages with inner conductor of antenna input. Be sure "O" ring remains in place and inner connector insulator seats properly in flanges. Rotate swivel flange on cable connector so alignment pins are opposite alignment holes, then join flanges. Add connecting hardware and bolt

flanges together, tightening evenly.

If cable has solid dielectric type cable connector (Type N, UHF, LC, etc.), remove dust cap and make connection to antenna. In low frequency applications (below 200 MHz) where slight increase in VSWR is not critical, use silicone grease inside connector to fill voids so moisture cannot form. Hand tighten connection. Weatherproof connection further by applying several layers of good weatherproofing tape.

Repeat procedure for connecting transmitter end of cable to output connection at equipment rack, making connection, where possible, directly to transmitter without any short interconnections. Generally, pressure barrier is required between transmitter and cable. If cable length must be changed, cut cable to appropriate length and reassemble connector in accordance with proper connector assembly instructions. Be especially careful not to damage "O" ring or insulator inside connector. When bulk cable is being installed, attach connector after required cable length has been determined. Follow connector assembly instructions. Replace pressurizing cap and repressurize remaining bulk cable.

6. PRESSURIZATION

After all connections have been completed, pressurize air dielectric cable. Changes in temperature can cause moisture from outside air that enters cable to condense and seriously impair efficiency, so cable must be under pressure at all times. If moist air has entered, it must be purged. Remove gas port plug located on connector at antenna end of cable, and purge cable continuously until it is dry. (In dual polarized system using Andrew antennas, purging can be performed from two cable connectors at transmitter end since there is gas path through feed from one input to other.) An alternative method is to pressurize to 8 lb/in² (55 kPa) and let air escape at transmitter end of cable after one hour. Repeat procedure several times allowing an hour each time for air to mix. After purging, replace gas port plug and pressurize cable.

Pressurization can be accomplished by manual or automatic means depending upon amount of cable in use at station and whether or not site is attended. Dry air hand pump is satisfactory for attended sites using relatively small amount of cable. Automatic electric dehydrators are recommended for unattended sites or those where large amounts of cable are employed. A cylinder of compressed air can also be used.

Gauge pressure of 8 lb/in² is adequate for most

installations. Excessive pressure, exceeding 10 lb/in² (70 kPa), is unnecessary and not recommended as it may damage feed window. Some feed windows have lower pressure ratings than 8 lb/in², and care must be taken to insure that maximum pressure is not exceeded. Regulating tank in pressurization system can be employed to provide low pressure outputs. NOTE: HELIAX cable assemblies are not hermetically sealed and may exhibit low leakage rate; consequently, cable installations not having automatic air supply must be inspected periodically.

Dry air is normally used for pressurizing. Dry nitrogen may also be used. When pressurizing equipment is connected to gas port on cable connector, or whenever pipe fittings are reassembled, threads must be covered with Teflon tape to insure leak-proof connection.

Manifold assembly is used to provide number of pressure outlets from one pressure source. Each outlet has valve and gauge to provide individual pressure readings.

After installation, check cable connections for leaks. Use commercial leak detector or liquid detergent over joints and check for bubbles. Unbroken soap film over entire joint for several minutes will indicate very small leaks.

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31535
Lace-up Hoisting Grip for 2-1/4 in and elliptical waveguide 37

Dimensions

Nominal Size	2-1/4 in	
Grip Length, minimum	660.40 mm	26.00 in
Leader Length, minimum	355.60 mm	14.00 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Tool Type	Hoisting grip	
Hoisting Grip Type	Lace-up hoisting grip	
Attachment Spacing Intervals	61 m	200 ft
Material Type	Stainless steel	Tin-coated bronze
Package Quantity	1	
Support Clamp	Not included	

Mechanical Specifications

Pull Load Capacity	1160 lb
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Packed Dimensions

Height	15.3 cm	15.3 in
Length	15.3 cm	15.3 in
Width	3.3 cm	3.3 in
Shipping Weight	0.77 kg	1.70 lb

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



24312A

Lace-up Hoisting Grip for 1-5/8 in coaxial cable and elliptical waveguide 44, 52, and 63

Dimensions

Nominal Size	1-5/8 in
Grip Length, minimum	685.80 mm 27.00 in
Leader Length, minimum	304.80 mm 12.00 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Tool Type	Hoisting grip
Hoisting Grip Type	Lace-up hoisting grip
Attachment Spacing Intervals	61 m 200 ft
Material Type	Stainless steel
Package Quantity	1
Support Clamp	Not included

Mechanical Specifications

Pull Load Capacity	950 lb
--------------------	--------

Packed Dimensions

Height	3.8 cm 1.5 in
Length	24.0 cm 9.4 in
Width	22.4 cm 8.8 in
Shipping Weight	0.40 kg 0.88 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system





19256B
Lace-up Hoisting Grip for 7/8 in coaxial cable, elliptical waveguide 77, and HELIAX® FiberFeed Hybrid cable

Dimensions

Nominal Size	7/8 in
Grip Length, minimum	431.80 mm 17.00 in
Leader Length, minimum	330.20 mm 13.00 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Tool Type	Hoisting grip
Hoisting Grip Type	Lace-up hoisting grip
Attachment Spacing Intervals	61 m 200 ft
Material Type	Stainless steel
Package Quantity	1
Support Clamp	Not included

Mechanical Specifications

Pull Load Capacity	500 lb
--------------------	--------

Packed Dimensions

Height	3.8 cm 1.5 in
Length	22.2 cm 8.7 in
Width	21.8 cm 8.6 in
Shipping Weight	0.22 kg 0.49 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



Product Specifications

COMMScope®



43094

Lace-up Hoisting Grip for 1/2 in coaxial cable and elliptical waveguide 180 and 220

Dimensions

Nominal Size	1/2 in	
Grip Length, minimum	254.00 mm	10.00 in
Leader Length, minimum	177.80 mm	7.00 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Tool Type	Hoisting grip
Hoisting Grip Type	Lace-up hoisting grip
Attachment Spacing Intervals	61 m 200 ft
Material Type	Stainless steel
Package Quantity	1
Support Clamp	Not included

Mechanical Specifications

Pull Load Capacity	500 lb
--------------------	--------

Packed Dimensions

Height	4.2 cm	1.7 in
Length	24.6 cm	9.7 in
Width	18.8 cm	7.4 in
Shipping Weight	0.20 kg	0.44 lb

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Support/Hoisting Grips

Coaxial Cables

Bulletin 237409, Revision H page 1 of 14

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READ ALL WARNINGS AND INSTRUCTIONS BEFORE INSTALLATION



WARNING

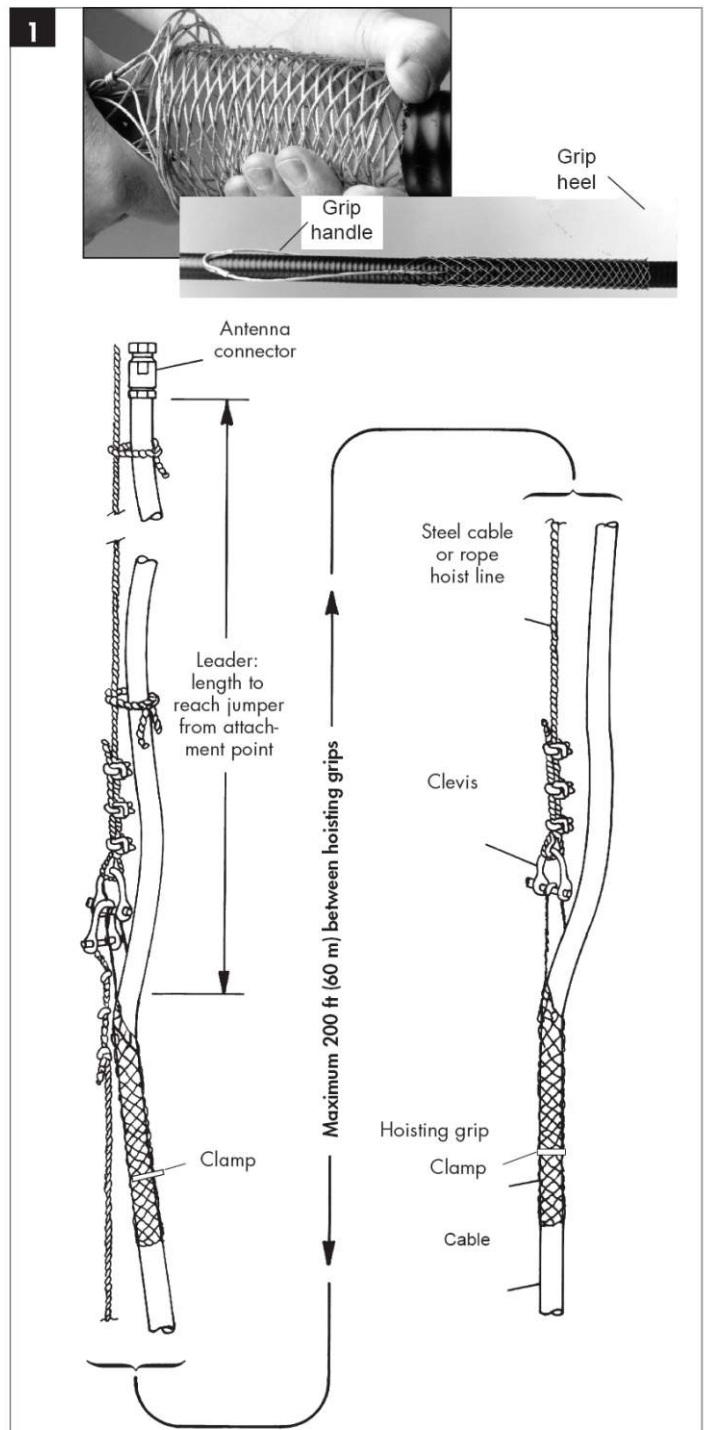
The following warnings alert you to possible dangers in misusing this product. Failure to obey a warning may result in injury or death to you or to others.

- Do not use one hoisting grip for hoisting two or more cables. This can cause the hoisting grip to break or the cables to fall.
- Do not use the hoisting grip for lowering cable unless the clamp is securely in place.
- Do not reuse hoisting grips. Used grips may have lost elasticity, stretched, or become weakened. Reusing a grip can cause the cable or waveguide to slip, break, or fall.
- Use hoisting grips at intervals of no more than 200 ft (60 m).
- Make sure that the proper hoisting grip is used for the cable being installed. Slippage or insufficient gripping strength will result if you are using the wrong hoisting grip.

Description

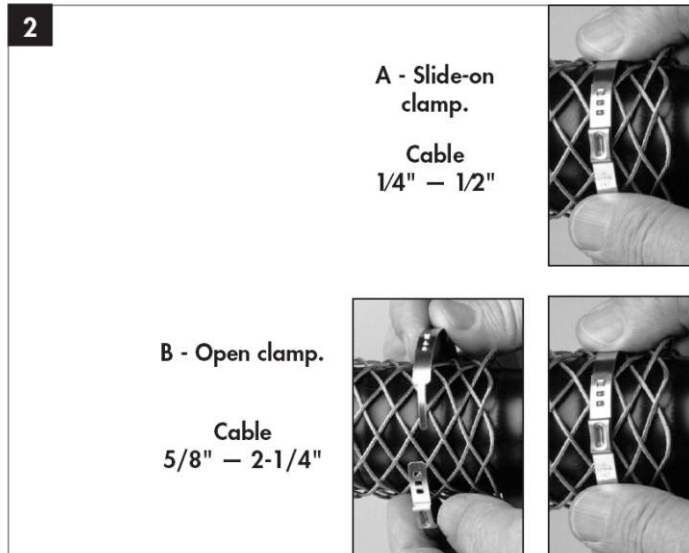
Support/hoisting grips are designed for hoisting cable safely up a tower and providing permanent support so that mechanical connection to an antenna can be made. A clamp is placed over the grip and secured to the cable with a special tool. When the cable is in position and the grip handle is fastened to a tower member, the hoist line can be removed.

- 1 Compress the grip ends towards each other and slide the grip heel (woven end) onto the cable (see photo). Place the hoisting grip(s) at the proper location on the cable before attaching the connector. Allow a sufficient length of cable leader to reach the antenna input when cable hoisting and attachment of the grip handle is completed. Hold the heel with one hand and firmly slide the other hand along the grip to tighten it.

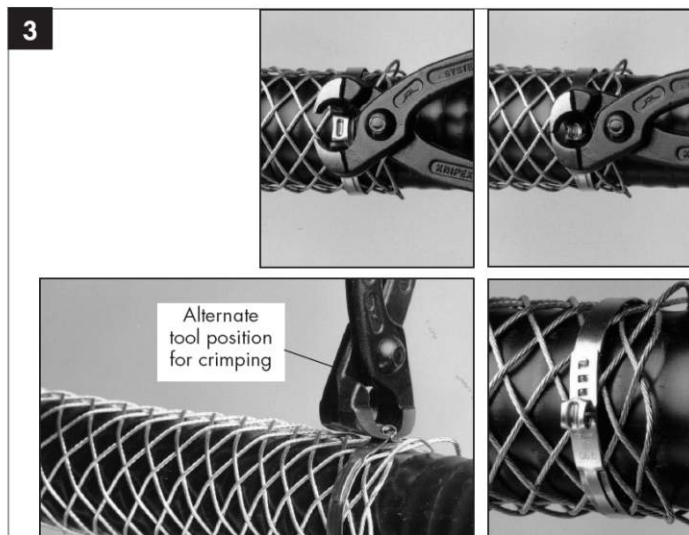


- 2** Slide the type A clamp onto the grip and position it 1" (25 mm) from the heel.

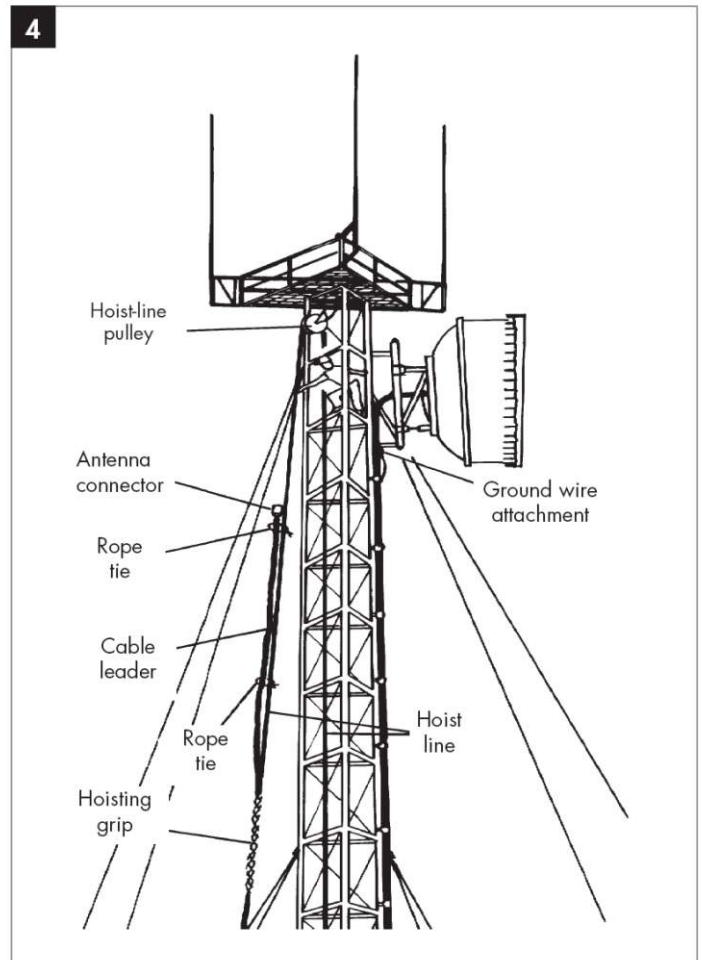
Open the type B clamp and position it over the grip 1" (25 mm) from the heel. Snap the clamp closed, ensuring that the 3 stops are fully seated in the 3 openings.



- 3** Crimp the clamp with Andrew crimping tool 243333 at each hoisting grip clamp location.



- 4** Attach the hoist line to the grip as shown. Tie the cable or waveguide leader to the hoist line so that the leader does not dangle. Apply tension slowly to the hoist line, allowing the hoisting grip to tighten uniformly on the cable.



WARNING

Maintain tension on the hoisting grip during hoisting. Loss of tension can cause dangerous movement of the cable and result in injury or death to you or others on or near the tower. Also, do not release tension on the grip until after the cable has been fastened to the tower members.

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Coaxial Cable Installation Accessories

Hoisting Grips for Coaxial Cable and Elliptical Waveguide

**READ ALL WARNINGS AND INSTRUCTIONS
BEFORE INSTALLATION**

WARNING

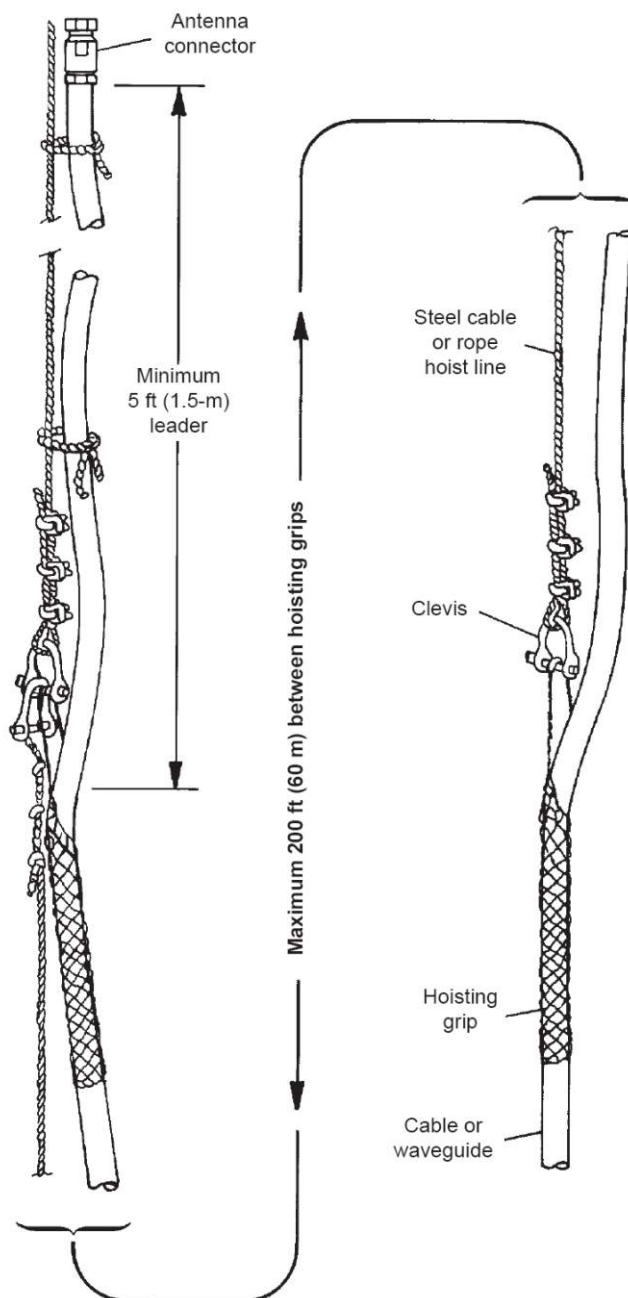
The following warnings alert you to possible dangers in misusing this product. Failure to obey a warning may result in injury or death to you or to others.

- **Do not use one hoisting grip for hoisting two or more cables or waveguides.** This can cause the hoisting grip to break or the cables or waveguides to fall.
- **Do not use the hoisting grip for lowering cable or waveguide.** Snagging of the cable or waveguide may loosen the grip and possibly cause the cable or waveguide to sway or fall.
- **Do not reuse hoisting grips.** Used grips may have lost elasticity, stretched, or become weakened. Reusing a grip can cause the cable or waveguide to slip, break, or fall.
- **Use hoisting grips at intervals of no more than 200 ft (60 m).**
- **Make sure that the proper hoisting grip is used for the cable or waveguide being installed.** Slippage or insufficient gripping strength will result if you are using the wrong hoisting grip.

Description

Hoisting grips are designed for hoisting cable or waveguide safely up a monopole or other tower so that mechanical connection to an antenna can be made. The grip is split and must be laced together on the cable or waveguide.

When the cable or waveguide is in position and fastened to the tower members, the hoist line can be removed. The hoisting grip may then be either attached to the monopole or other tower as additional support for the cable or waveguide or removed.

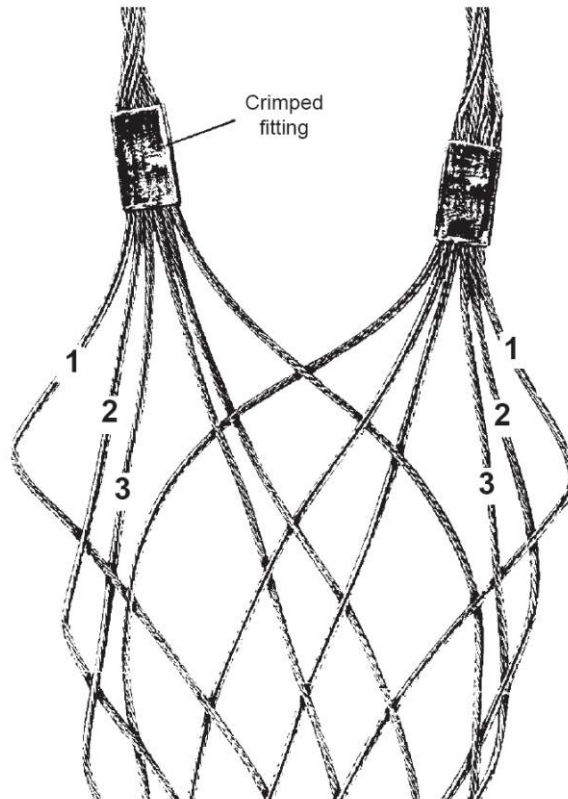


1

Place the hoisting grip at the proper location on the cable. Allow a sufficient length of cable or waveguide leader between the connector and the grip to reach the antenna input when hoisting is completed.

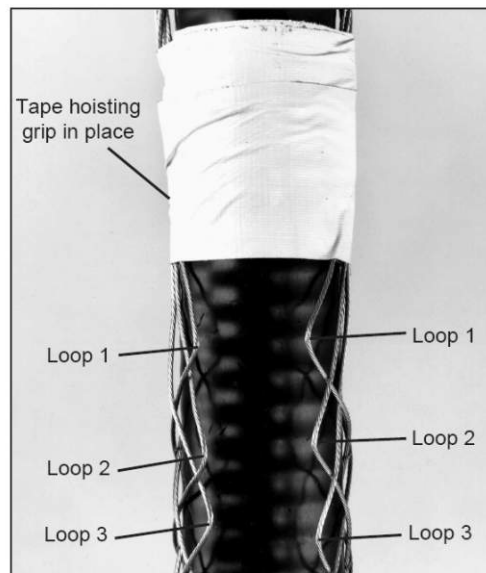
2

Identify the first three loop pairs to be laced at the crimp fittings. Make sure that the loops are not tangled. *It is important that the loop pairs are correctly matched to ensure maximum gripping strength.*



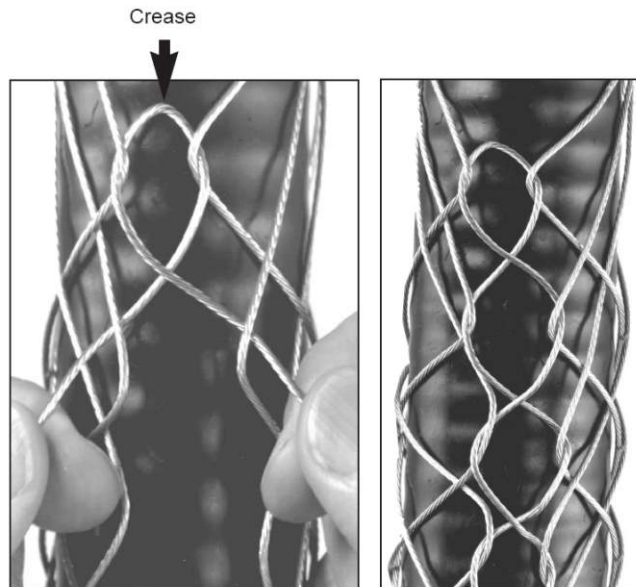
3

Tape both crimped fittings to the cable or waveguide. this will align the loop pairs of the hoisting grip and aid in lacing.



4

Fold the lace in half to form a crease at the center. Starting at the top, pass the lace through the first loop pair so that the crease is between them.



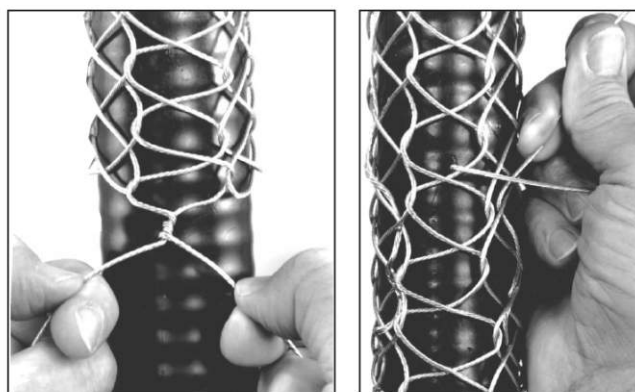
5

Continue lacing so that the seam is straight and the lace is pulled so that the space between both sides of the seam is no greater than the spaces of the mesh next to the loop. **Do not skip any loop pairs of the grip when lacing;** this will weaken the hoisting grip. *The grip can be compressed from bottom to top to simplify lacing.*



6

Tightly twist the lacing together several times at the end of the seam. Wrap the lace around the hoisting grip, twist it together, and thread the remainder of lace through the grip. **Do not tie knots or hitches with the lace because they will not hold.**



7

IMPORTANT: First, remove the tape from the top of the hoisting grip. Then, place both hands firmly around the bottom of the grip and slide them upward to the top. This pulling action removes slack throughout the grip. Do this twice. *Taping the bottom 3" (76 mm) of the grip will help prevent slippage.*



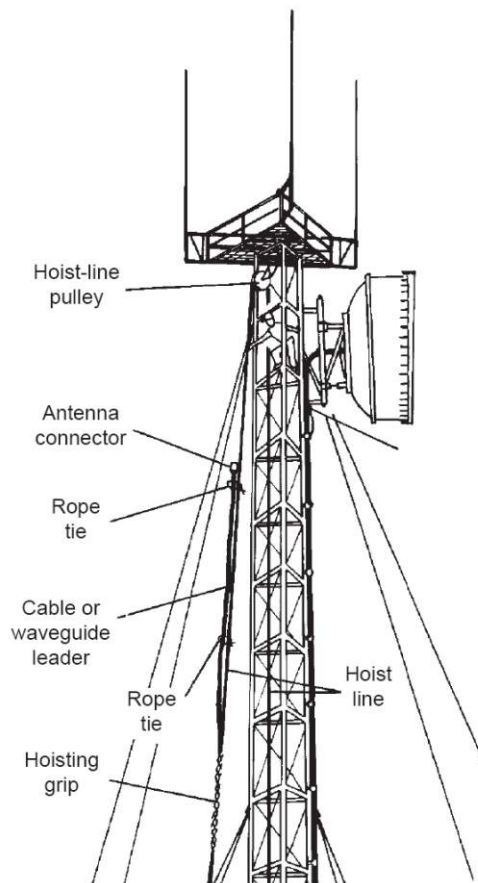
8

Attach the hoist line to the grip. Tie the cable or waveguide leader to the hoist line so that the leader does not dangle. Apply tension slowly to the hoist line to allow the hoisting grip to tighten uniformly on the cable or waveguide.

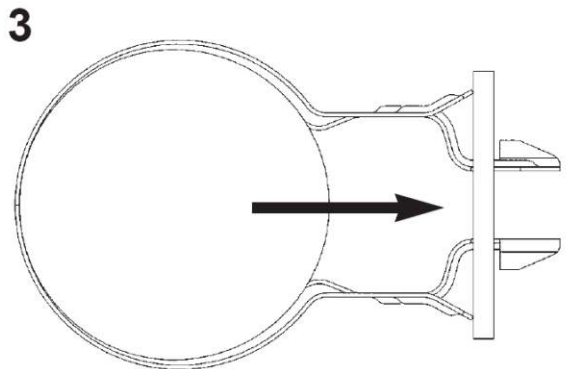
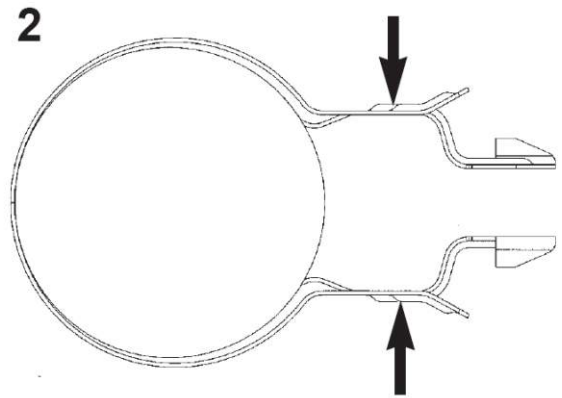
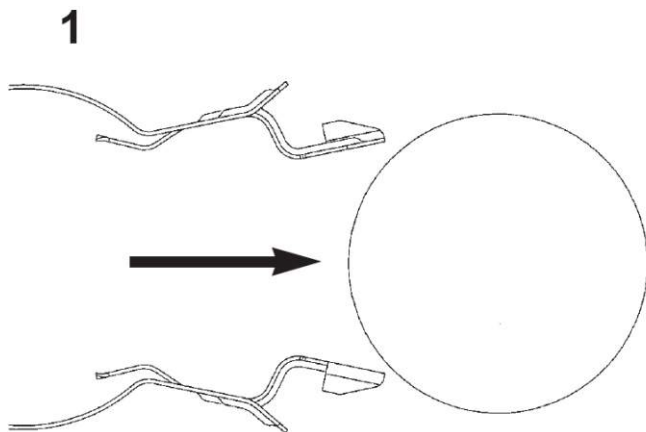
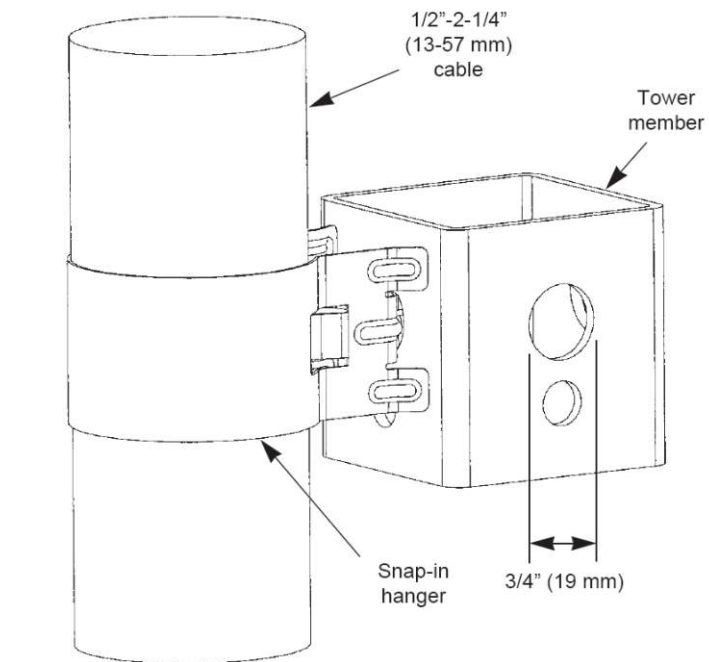


WARNING

Maintain tension on the hoisting grip during hoisting. Loss of tension can cause dangerous movement of the cable or waveguide and result in injury or death to you or others on or near the monopole or other tower. Also, do not release tension on the grip until after the cable or waveguide has been fastened to the tower members.

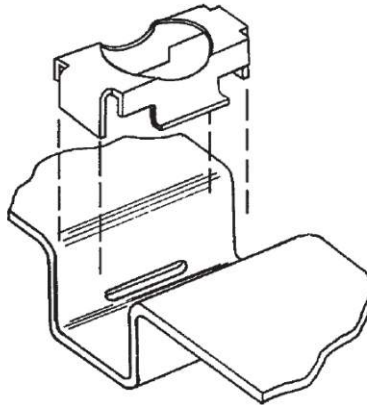


Snap-in Cable Hangers

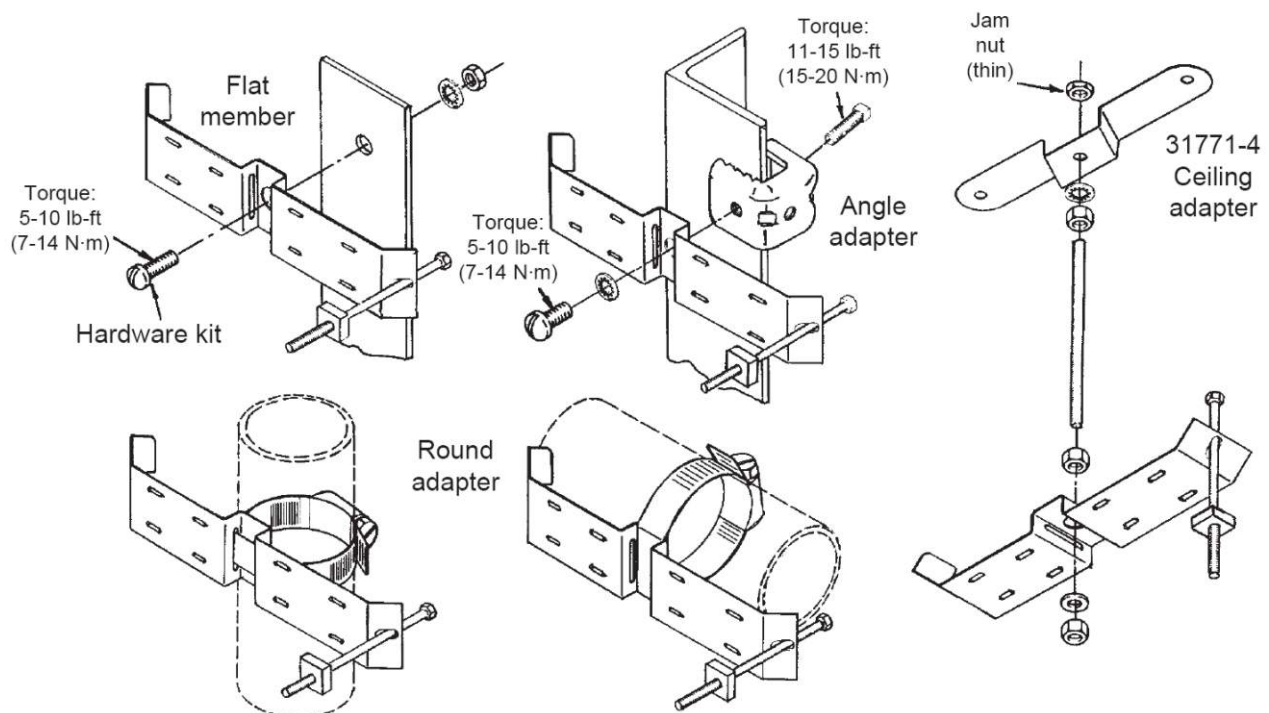


Hanger Kits for Coaxial Cable and Elliptical Waveguide

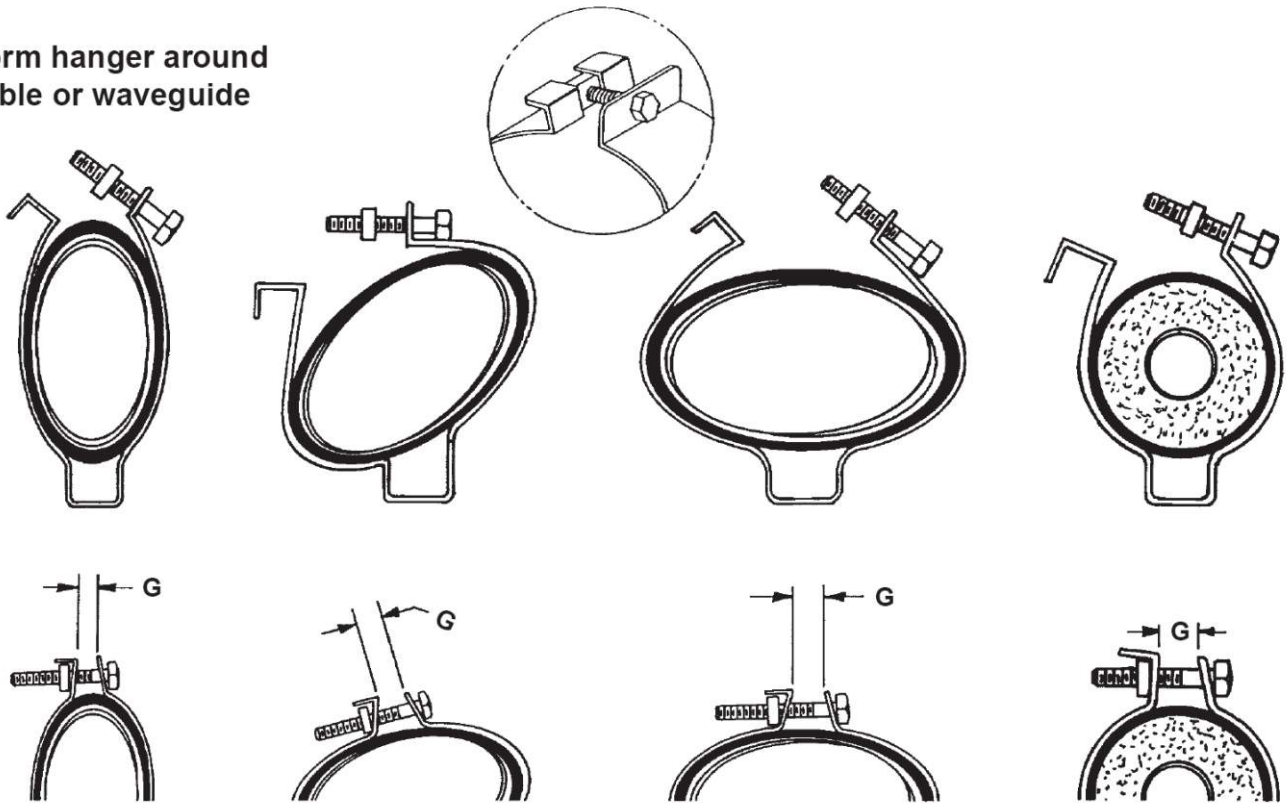
Add support bracket to hanger
for cable or waveguide smaller
than 1-1/2" (38 mm)



Attach hangers to support structure



Form hanger around
cable or waveguide

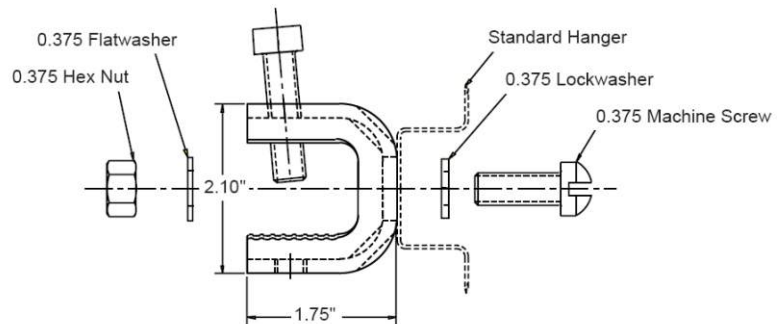
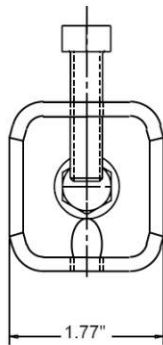
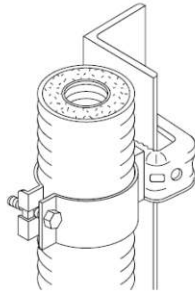


Squeeze locking tabs together, slip nut under opposite
tab, and tighten bolt until gap G is 5/16" (8 mm)

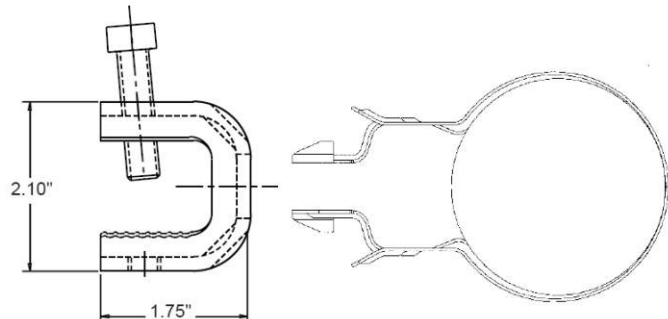
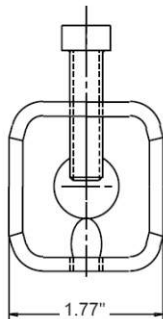
Angle Adapters

Description

These adapters are designed for mounting 1/2" to 1-5/8" cable hangers to angle tower members and include hanger attachment hardware.

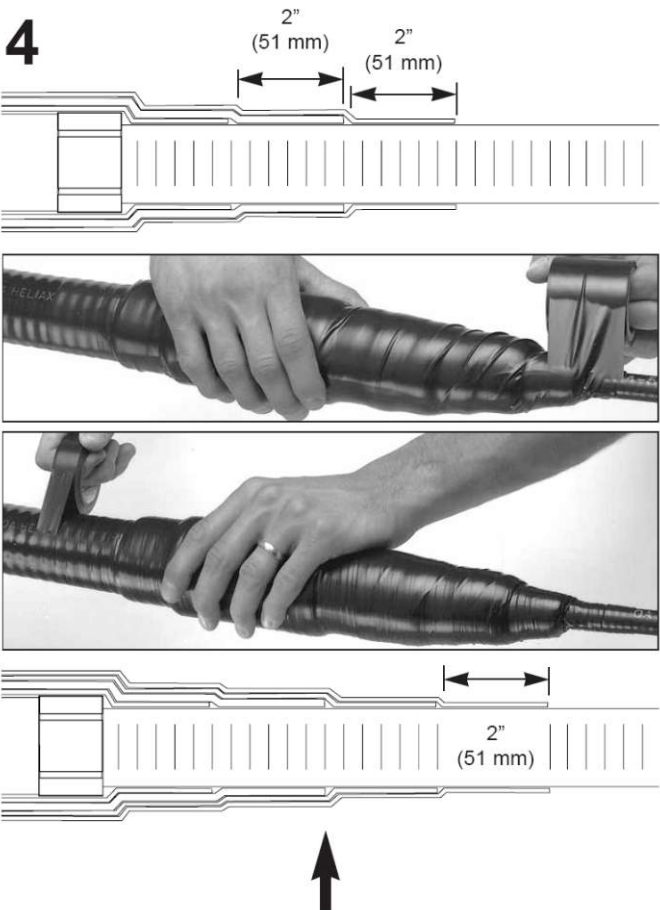
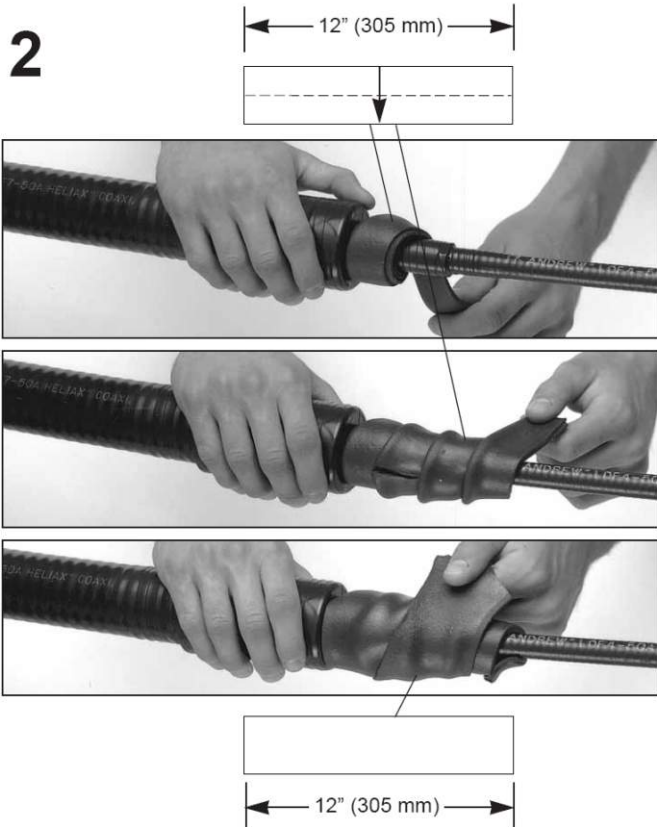
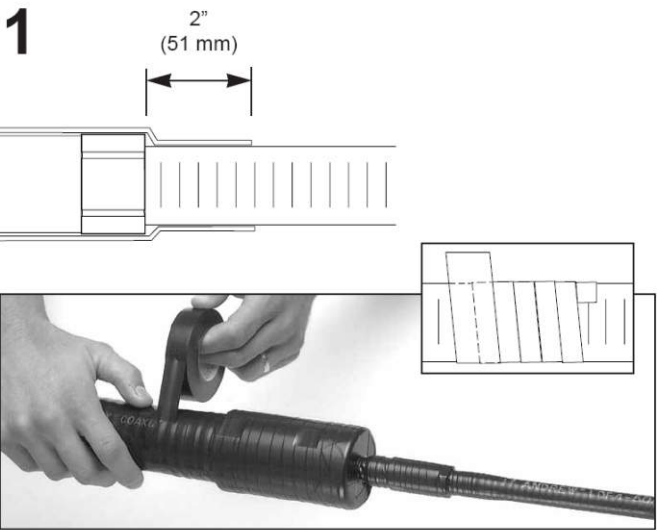


Standard Hanger Application



Snap-In Hanger Application

Connector Weatherproofing Kit



DO NOT PULL THE TAPE during the last few turns.
Pulled tape applies tension to the adhesive and will cause the tape to eventually unravel.



31766A-10
Butterfly Hanger for 4 in coaxial cable and elliptical waveguide 20

Dimensions

Nominal Size	4 in
Compatible Diameter, maximum	106.680 mm 4.200 in
Compatible Diameter, minimum	101.600 mm 4.000 in
Height	42.00 mm 1.65 in
Length	63.50 mm 2.50 in
Waveguide Size	WR340 WG9A R26
Width	38.10 mm 1.50 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Hanger Type	Standard butterfly hanger
Cable Type	Corrugated Elliptical waveguide
Cables per Hanger	1
Color	Silver
Material Type	Stainless steel
Package Quantity	10

Mechanical Specifications

Axial Load Capability, minimum with no cable slippage	=5 times cable weight
Corrosion Resistance, minimum with no degradation	=500 hours in salt spray chamber
Mounting	3/8 in (M10) drilled cable ladder
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Vibration Survival	=4 hours at resonant frequency

Packed Dimensions

Height	36.8 cm 14.5 in
Length	11.0 cm 4.3 in
Shipping Weight	2.11 kg 4.65 lb
Width	11.0 cm 4.3 in

Regulatory Compliance/Certifications

Product Specifications

COMMScope®

31766A-10

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Agency

ISO 9001:2008

Classification

Designed, manufactured and/or distributed under this quality management system



31766A-11

Butterfly Hanger for 3 in coaxial cable and elliptical waveguide 28

Dimensions

Nominal Size	3 in
Compatible Diameter, maximum	46.482 mm 1.830 in
Compatible Diameter, minimum	42.672 mm 1.680 in
Height	42.00 mm 1.65 in
Length	63.50 mm 2.50 in
Waveguide Size	WR284 WG10 R32
Width	38.10 mm 1.50 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Hanger Type	Standard butterfly hanger
Cable Type	Corrugated Elliptical waveguide
Cables per Hanger	1
Color	Silver
Material Type	Stainless steel
Package Quantity	10

Mechanical Specifications

Axial Load Capability, minimum with no cable slippage	=5 times cable weight
Corrosion Resistance, minimum with no degradation	=500 hours in salt spray chamber
Mounting	3/8 in (M10) drilled cable ladder
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Vibration Survival	=4 hours at resonant frequency

Packed Dimensions

Height	26.0 cm 10.2 in
Length	9.0 cm 3.5 in
Shipping Weight	1.67 kg 3.68 lb
Width	9.0 cm 3.5 in

Regulatory Compliance/Certifications

Product Specifications

COMMScope®

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Agency

ISO 9001:2008

Classification

Designed, manufactured and/or distributed under this quality management system



42396A-4
Butterfly Hanger for 2-1/4 in coaxial cable and elliptical waveguide 37

Dimensions

Nominal Size	2-1/4 in
Compatible Diameter, maximum	59.944 mm 2.360 in
Compatible Diameter, minimum	58.166 mm 2.290 in
Height	82.00 mm 3.23 in
Length	110.00 mm 4.33 in
Width	38.10 mm 1.50 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Hanger Type	Standard butterfly hanger
Cables per Hanger	1
Color	Silver
Material Type	Stainless steel
Package Quantity	10

Mechanical Specifications

Axial Load Capability, minimum with no cable slippage	=5 times cable weight
Corrosion Resistance, minimum with no degradation	=500 hours in salt spray chamber
Mounting	3/8 in (M10) drilled cable ladder
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Vibration Survival	=4 hours at resonant frequency

Packed Dimensions

Height	33.0 cm 13.0 in
Length	6.0 cm 2.4 in
Shipping Weight	0.74 kg 1.64 lb
Width	22.0 cm 8.7 in

Regulatory Compliance/Certifications

Agency	Classification
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Product Specifications

COMMScope®

42396A-4

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RoHS 2011/65/EU

China RoHS SJ/T 11364-2006

ISO 9001:2008

Compliant

Below Maximum Concentration Value (MCV)

Designed, manufactured and/or distributed under this quality management system





42396A-2
Butterfly Hanger for 1-5/8 in coaxial cable

Dimensions

Nominal Size	1-5/8 in
Compatible Diameter, maximum	52.070 mm 2.050 in
Compatible Diameter, minimum	48.260 mm 1.900 in
Height	70.00 mm 2.76 in
Length	88.90 mm 3.50 in
Width	38.10 mm 1.50 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Hanger Type	Standard butterfly hanger
Cables per Hanger	1
Color	Silver
Material Type	Stainless steel
Package Quantity	10

Mechanical Specifications

Axial Load Capability, minimum with no cable slippage	=5 times cable weight
Corrosion Resistance, minimum with no degradation	=500 hours in salt spray chamber
Mounting	3/8 in (M10) drilled cable ladder
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Vibration Survival	=4 hours at resonant frequency

Packed Dimensions

Height	25.4 cm 10.0 in
Length	17.7 cm 7.0 in
Shipping Weight	0.56 kg 1.24 lb
Width	39.4 cm 15.5 in

Regulatory Compliance/Certifications

Agency	Classification
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Product Specifications

COMMScope®

42396A-2

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RoHS 2011/65/EU

China RoHS SJ/T 11364-2006

ISO 9001:2008

Compliant

Below Maximum Concentration Value (MCV)

Designed, manufactured and/or distributed under this quality management system





31768A-M
Angle Adapter, standard, M10 tapped hole



Dimensions

Inside Length	22.23 mm		0.88 in
Inside Width	22.23 mm		0.88 in
Outside Length	44.96 mm		1.77 in
Outside Width	53.34 mm		2.10 in

General Specifications

Adapter Type	Angle adapter
Material Type	Stainless steel
Package Quantity	10

Mechanical Specifications

Installation Torque, maximum	15.0 ft lb
Installation Torque, minimum	11.0 ft lb
Material Thickness	4.191 mm 0.165 in
Maximum Loading	Triple stack, 1-5/8 in cable
Mounting	M10 tapped hole

Packed Dimensions

Height	14.2 cm		5.6 in
Length	10.2 cm		4.0 in
Shipping Weight	2.33 kg		5.14 lb
Width	14.2 cm		5.6 in

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



Installation Instructions

Bulletin 17783M

Type 31766A

Revision A

Hanger Kits

for HELIAX® Elliptical Waveguide and
Coaxial Cable



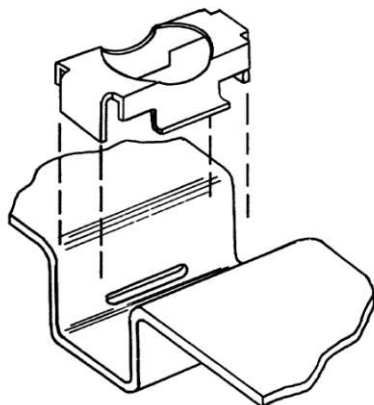
NOTE: The hanger can accommodate waveguide twisting over long lengths.

Recommended hanger spacing

Wind speed: 125 mph (200 km/h)

Radial ice: 1/2" (13 mm)

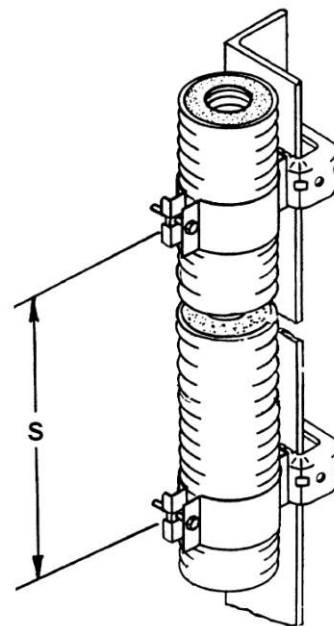
Add support bracket 42241 (see list)



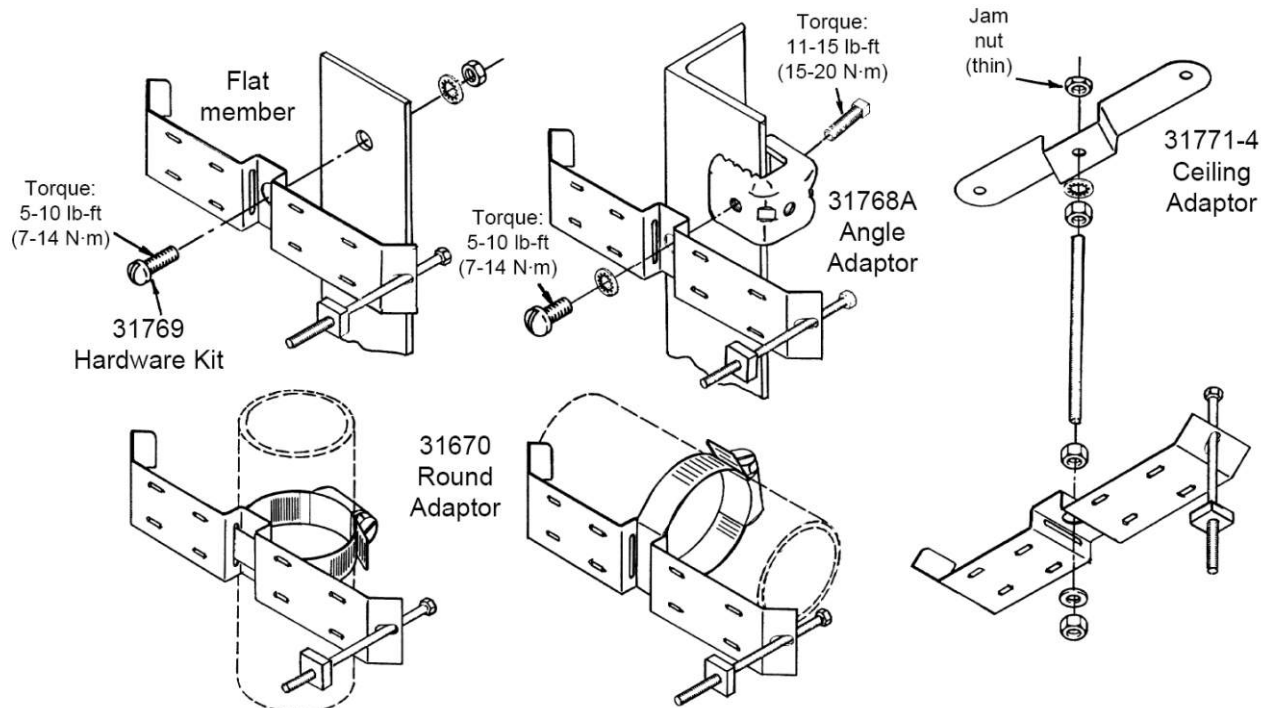
Kit	Waveguide	Spacing (S)
31766A-9	EW/EWP17	4 ft (1.2 m)
31766A-10	EW20	4 ft (1.2 m)
31766A-11	EW28	4 ft (1.2 m)
31766A-13	EW/EWP132	4 ft (1.2 m)

Kit	Cable	Spacing (S)
31766A-11	HJ8	6 ft (1.8 m)
31766A-10	HJ11	6 ft (1.8 m)
33598-5	HJ9	6 ft (1.8 m)

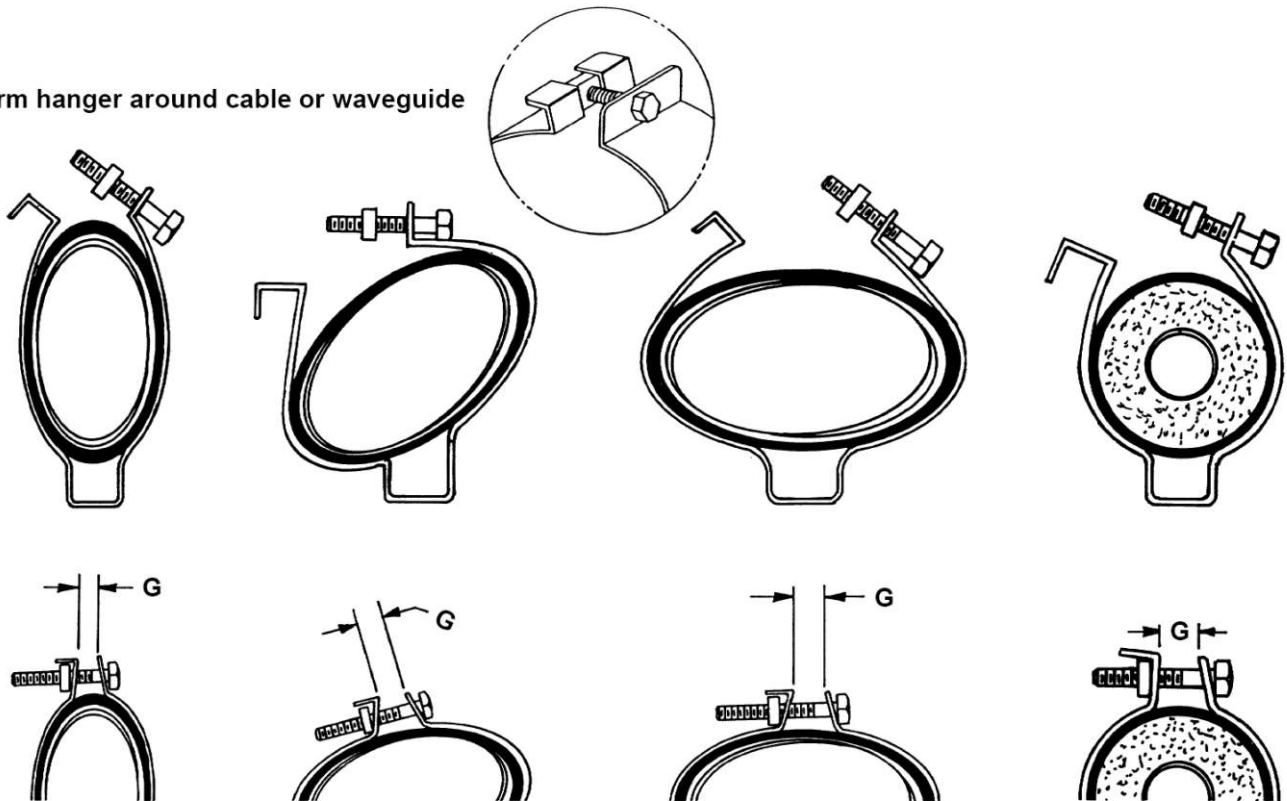
*Includes support bracket 42241



Attach hangers to support structure



Form hanger around cable or waveguide



Squeeze locking tabs together, slip nut under opposite tab, and tighten bolt until gap G is 5/16" (8 mm)

Notice

The installation, maintenance, or removal of antenna systems requires qualified, experienced personnel. Andrew installation instructions are 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.



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42396A-5
Butterfly Hanger for 7/8 in coaxial cable and elliptical waveguide 85 and 90

Dimensions

Nominal Size	7/8 in
Compatible Diameter, maximum	30.988 mm 1.220 in
Compatible Diameter, minimum	26.670 mm 1.050 in
Height	42.00 mm 1.65 in
Length	63.50 mm 2.50 in
Width	38.10 mm 1.50 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Hanger Type	Standard butterfly hanger
Cables per Hanger	1
Color	Silver
Material Type	Stainless steel
Package Quantity	10

Mechanical Specifications

Axial Load Capability, minimum with no cable slippage	=5 times cable weight
Corrosion Resistance, minimum with no degradation	=500 hours in salt spray chamber
Mounting	3/8 in (M10) drilled cable ladder
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Vibration Survival	=4 hours at resonant frequency

Packed Dimensions

Height	25.4 cm 10.0 in
Length	11.4 cm 4.5 in
Shipping Weight	0.49 kg 1.08 lb
Width	9.5 cm 3.7 in

Regulatory Compliance/Certifications

Agency	Classification
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Product Specifications

COMMScope®

42396A-5

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Compliant
Below Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system

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Hanger Kits, Type 42396A

For HELIAX® Elliptical Waveguide and Coaxial Cable

Bulletin 37321B, Revision K page 1 of 2

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CommScope Infrastructure Academy offers on-line installation training and certifications.

Note: Hanger can accommodate waveguide twisting over long lengths.

Nota: El soporte de suspensión puede albergar una guía de onda doblándose a lo largo de grandes distancias.

Remarque: Le support peut accepter une torsion du guide d'ondes sur d'importantes longueurs.

Hinweis: Der Halter kann Verdrehungen des Hohlleiters über große Längen aufnehmen.

Obs.: o gancho pode acomodar a torção da guia de onda por grandes distâncias

註: 吊架可調節扭轉較長的波導管。

Recommended Hanger Spacing

Wind Speed: 125 mph (200 km/h) Radial Ice: 1/2" (13 mm)

Separación recomendada entre los soportes

Velocidad del viento: 125 mph (200 km/h) Hielo radial: 1/2" (13 mm)

Espacement recommandé du support

Vitesse du vent: 125 mph (200 km/h) Glace radiale: 1/2" (13 mm)

Empfohlener Halterabstand

Windgeschwindigkeit: 125 mph (200 km/h) Eismantel: 1/2" (13 mm)

Espaço recomendado para o gancho

Velocidade do vento: 125 mph (200 km/h) Gelo Radial: 1/2" (13 mm)

建議的吊架間隔

風速 125 mph (200 km/h) 輻狀冰 1/2" (13 mm)

Kit	Waveguide or cable	Spacing (S)
Kit	Guía de onda o cable	Separación (S)
Juego	Guide d'ondes ou câble	Espacement (S)
Satz	Hohlleiter oder Kabel	Abstand (S)
Kit	Guia de onda ou cabo	Espaçamento (S)
元件	波導管或電纜	間隔
42396A-15	EW/EWP34	4.5 ft (1.37 m)
42396A-4	EW/EWP37	4.5 ft (1.37 m)
42396A-16	EW/EWP43	4 ft (1.2 m)
42396A-8	EW/EWP52	3 ft (0.91 m)
42396A-7*	EW/EWP63	3 ft (0.91 m)
42396A-1*	EW/EWP64	3 ft (0.91 m)
42396A-11*	EW/EWP77	3 ft (0.91 m)
42396A-5*	EW85	3 ft (0.91 m)
42396A-5*	EW/EWP90	3 ft (0.91 m)
42396A-9*	EW/EWP127A	3 ft (0.91 m)
42396A-9*	EW/EWP132	3 ft (0.91 m)
42396A-5*	LDF5	4 ft (1.2 m)
42396A-5*	HJ5/HT5/FT5	4 ft (1.2 m)
42396A-1*	LDF6	4 ft (1.2 m)
42396A-2*	HJ7/LDF7	3 ft (0.91 m)
42396A-4	HJ12	3 ft (0.91 m)
42396A-9*	HJ4.5	4 ft (1.2 m)

*includes support bracket 42241

*incluye el soporte 42241

*inclut le support 42241

*einschließlich Stützkonsole 42241

*inclui braçadeira de suporte 42241

*包含支撐架 42241

Add support bracket 42241 (see list)

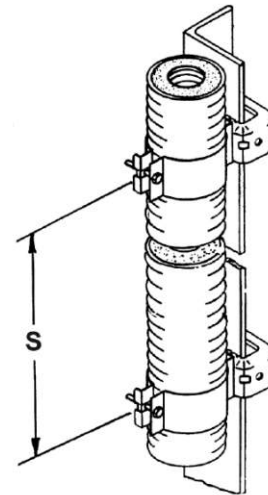
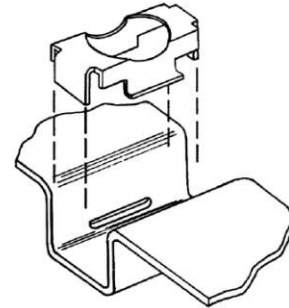
Agregue el soporte de suspensión de sostén 42241 (consulte la lista)

Mettez en place le support 42241 (voir liste)

Zuzüglich Stützkonsole 42241 (siehe Liste)

Acrescentar braçadeira de suporte 42241 (consulte a lista)

新增支撐架 42241 (請參閱清單)



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una vez al año utilizando personal calificado a fin de verificar si la instalación, el mantenimiento y la condición del equipo son adecuados. Andrew no asume ninguna responsabilidad ni obligación resultante de las prácticas de instalación o inseguras.

Avis: L'installation, la maintenance et la dépose des systèmes d'antennes doivent être effectués par des techniciens qualifiés. Les instructions de montage Andrew ont été prévues pour un tel personnel. Les systèmes d'antennes doivent être inspectés tous les ans par des techniciens qualifiés afin de vérifier l'installation, la maintenance et l'état des équipements. Andrew décline toute responsabilité dans le cas de non respect de ces instructions.

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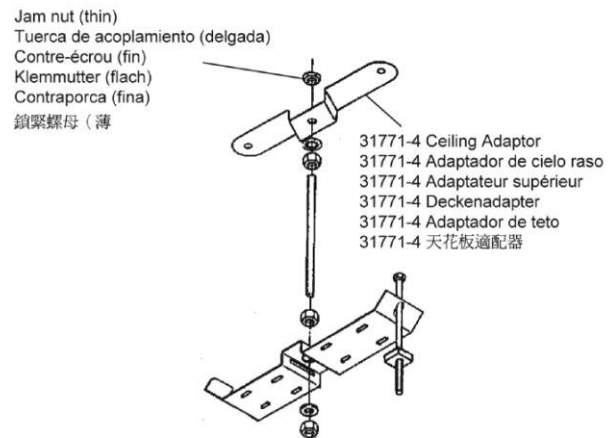
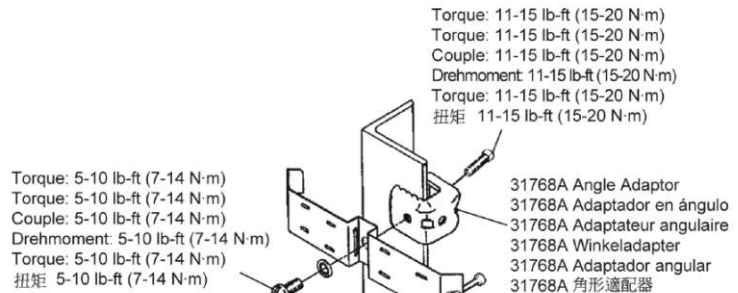
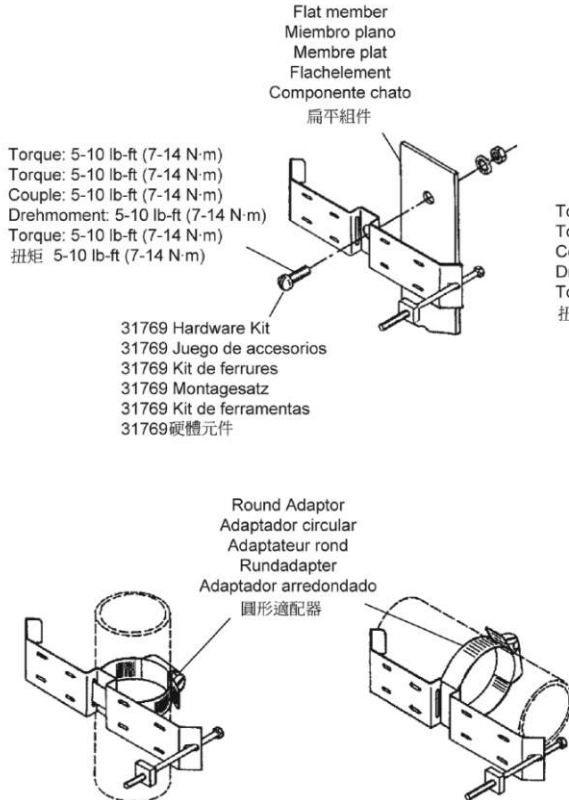
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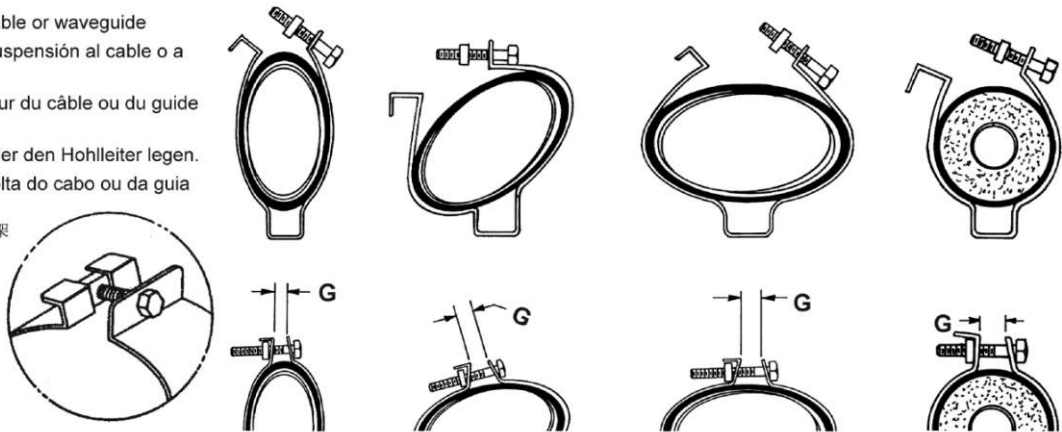
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Attach hangers to support structure
Coloque el soporte de suspensión a la estructura de sostén
Fixez les supports à la structure porteuse

Halter am Tragwerk befestigen.
Prender os ganchos na estrutura de suporte
將吊架安裝在支撐結構上



Form hanger around cable or waveguide
Adapte el soporte de suspensión al cable o a la guía de onda
Formez le support autour du câble ou du guide d'ondes
Halter um das Kabel oder den Hohlleiter legen.
Moldar o gancho em volta do cabo ou da guia de onda
電纜或波導管周圍的成形吊架



CommScope

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注意: CommScope 公司申明對於不恰當或不安全的安裝、檢驗、維修或拆卸操作所導致的後果不負任何義務和責任

Customer Service 24 hours

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43211A

Butterfly Hanger for 1/2 in or 3/8 in coaxial cable and elliptical waveguide 180, 220, and 240

Dimensions

Nominal Size	1/2 in
Compatible Diameter, maximum	16.256 mm 0.640 in
Compatible Diameter, minimum	10.414 mm 0.410 in
Height	31.75 mm 1.25 in
Length	40.64 mm 1.60 in
Width	38.10 mm 1.50 in

Electrical Specifications

DTF Effect	0.1 dB
Return Loss Effect	0.1 dB

General Specifications

Hanger Type	Standard butterfly hanger
Cables per Hanger	1
Color	Silver
Material Type	Stainless steel
Package Quantity	10

Mechanical Specifications

Axial Load Capability, minimum with no cable slippage	=5 times cable weight
Corrosion Resistance, minimum with no degradation	=500 hours in salt spray chamber
Mounting	3/8 in (M10) drilled cable ladder
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Vibration Survival	=4 hours at resonant frequency

Packed Dimensions

Height	14.8 cm 5.8 in
Length	9.0 cm 3.5 in
Shipping Weight	0.34 kg 0.75 lb
Width	10.6 cm 4.2 in

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

COMMScope®

43211A

POWERED BY



Hanger Kits, Type 42396A

For HELIAX® Elliptical Waveguide and Coaxial Cable

Bulletin 37321B, Revision K page 1 of 2

POWERED BY



CommScope Infrastructure Academy offers on-line installation training and certifications.

Note: Hanger can accommodate waveguide twisting over long lengths.

Nota: El soporte de suspensión puede albergar una guía de onda doblándose a lo largo de grandes distancias.

Remarque: Le support peut accepter une torsion du guide d'ondes sur d'importantes longueurs.

Hinweis: Der Halter kann Verdrehungen des Hohlleiters über große Längen aufnehmen.

Obs.: o gancho pode acomodar a torção da guia de onda por grandes distâncias

註：吊架可調節扭轉較長的波導管。

Recommended Hanger Spacing

Wind Speed: 125 mph (200 km/h) Radial Ice: 1/2" (13 mm)

Separación recomendada entre los soportes

Velocidad del viento: 125 mph (200 km/h) Hielo radial: 1/2" (13 mm)

Espacement recommandé du support

Vitesse du vent: 125 mph (200 km/h) Glace radiale: 1/2" (13 mm)

Empfohlener Halterabstand

Windgeschwindigkeit: 125 mph (200 km/h) Eismantel: 1/2" (13 mm)

Espaço recomendado para o gancho

Velocidade do vento: 125 mph (200 km/h) Gelo Radial: 1/2" (13 mm)

建議的吊架間隔

風速 125 mph (200 km/h) 輻狀冰 1/2" (13 mm)

Kit	Waveguide or cable	Spacing (S)
Kit	Guía de onda o cable	Separación (S)
Juego	Guide d'ondes ou câble	Espacement (S)
Satz	Hohlleiter oder Kabel	Abstand (S)
Kit	Guia de onda ou cabo	Espaçamento (S)
元件	波導管或電纜	間隔
42396A-15	EW/EWP34	4.5 ft (1.37 m)
42396A-4	EW/EWP37	4.5 ft (1.37 m)
42396A-16	EW/EWP43	4 ft (1.2 m)
42396A-8	EW/EWP52	3 ft (0.91 m)
42396A-7*	EW/EWP63	3 ft (0.91 m)
42396A-1*	EW/EWP64	3 ft (0.91 m)
42396A-11*	EW/EWP77	3 ft (0.91 m)
42396A-5*	EW85	3 ft (0.91 m)
42396A-5*	EW/EWP90	3 ft (0.91 m)
42396A-9*	EW/EWP127A	3 ft (0.91 m)
42396A-9*	EW/EWP132	3 ft (0.91 m)
42396A-5*	LDF5	4 ft (1.2 m)
42396A-5*	HJ5/HT5/FT5	4 ft (1.2 m)
42396A-1*	LDF6	4 ft (1.2 m)
42396A-2*	HJ7/LDF7	3 ft (0.91 m)
42396A-4	HJ12	3 ft (0.91 m)
42396A-9*	HJ4.5	4 ft (1.2 m)

*includes support bracket 42241

*einschließlich Stützkonsole 42241

*incluye el soporte 42241

*inclui braçadeira de suporte 42241

*inclut le support 42241

*包含支撐架 42241

Notice: The installation, maintenance, or removal of antenna systems requires qualified, experienced personnel. Andrew installation instructions are 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.

Advertencia: Se requiere que la instalación, el mantenimiento o el retiro de los sistemas de antenas sea efectuado por personal calificado y con experiencia. Las instrucciones de instalación de Andrew se han escrito pensando en esta clase de personal. Se deben inspeccionar los sistemas de antenas

una vez al año utilizando personal calificado a fin de verificar si la instalación, el mantenimiento y la condición del equipo son adecuados. Andrew no asume ninguna responsabilidad ni obligación resultante de las prácticas de instalación o inseguras.

Avis: L'installation, la maintenance et la dépose des systèmes d'antennes doivent être effectuées par des techniciens qualifiés. Les instructions de montage Andrew on été prévues pour un tel personnel. Les systèmes d'antennes doivent être inspectés tous les ans par des techniciens qualifiés afin de vérifier l'installation, la maintenance et l'état des équipements. Andrew décline toute responsabilité dans le cas de non respect de ces instructions.

Anmerkung: Die Installation, Wartung oder Abnahme eines Antennensystems erfordert qualifiziertes und geschultes Personal, für das auch die Andrew Montageanweisungen geschrieben worden sind. Antennensysteme sollten jährlich von qualifiziertem Personal überprüft werden, um die einwandfreie Montage, Wartung und den Zustand der Systemkomponenten sicherzustellen. Andrew lehnt jede Haftung oder Verantwortung für Schäden ab, die aufgrund unsachgemäßer Installation auftreten.

Observação: A instalação, manutenção ou remoção dos sistemas de antena requer pessoal experiente e qualificado. As instruções de instalação da Andrew foram escritas para

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Add support bracket 42241 (see list)

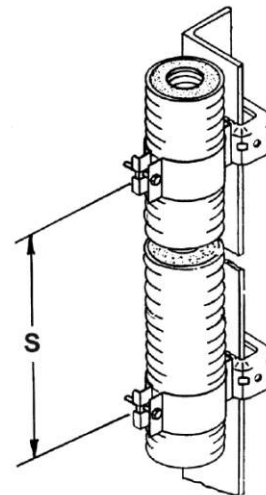
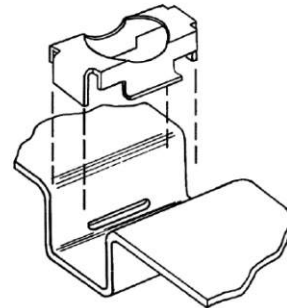
Agregue el soporte de suspensión de sostén 42241 (consulte la lista)

Mettez en place le support 42241 (voir liste)

Zuzüglich Stützkonsole 42241 (siehe Liste)

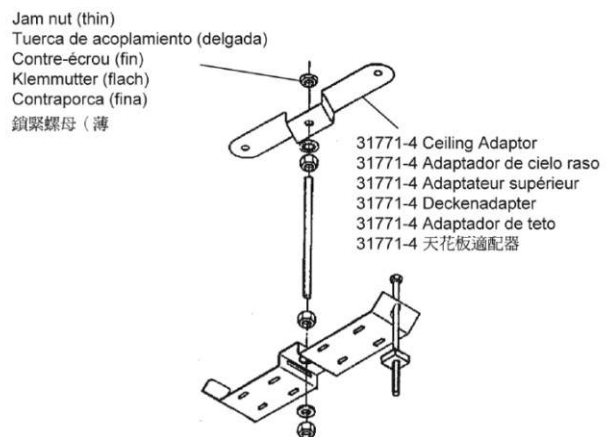
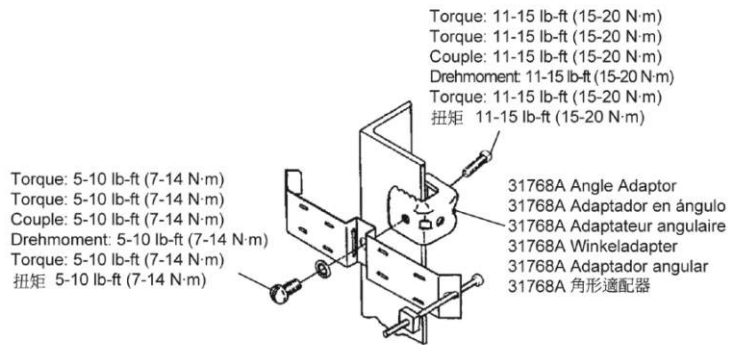
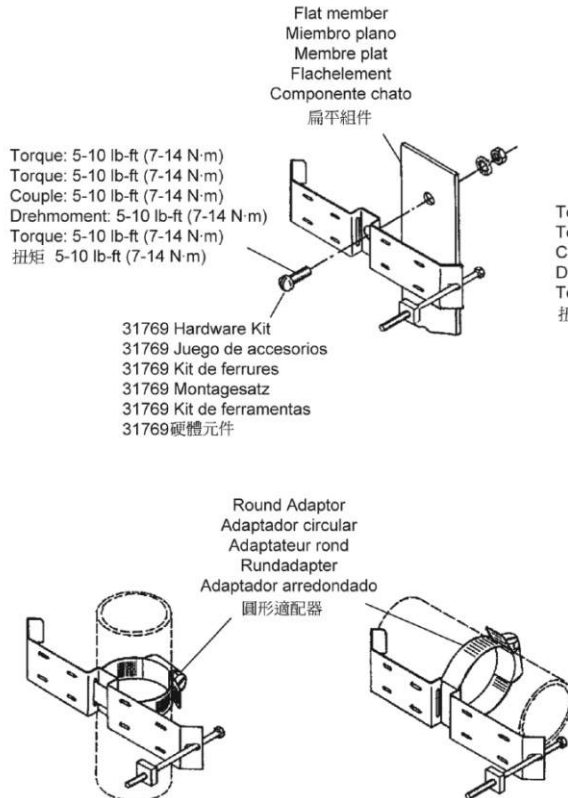
Acrescentar braçadeira de suporte 42241 (consulte a lista)

新增支撐架 42241 (請參閱清單)

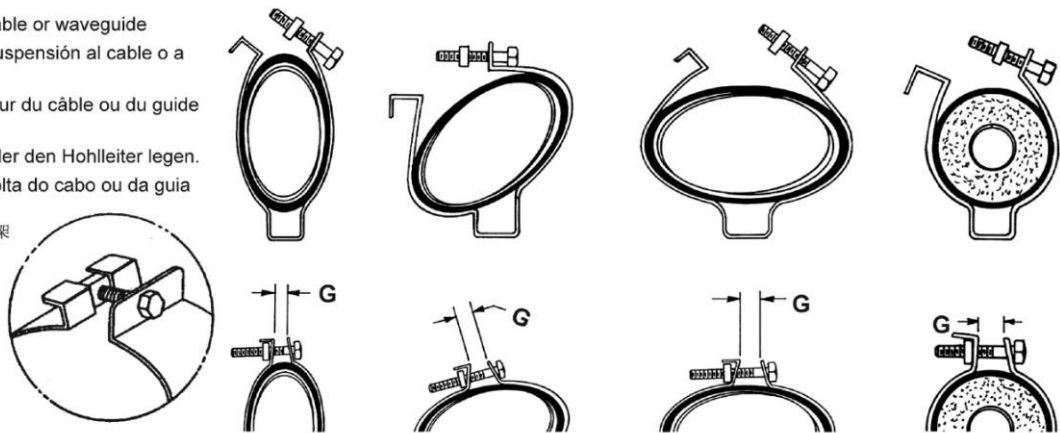


Attach hangers to support structure
Coloque el soporte de suspensión a la estructura de sostén
Fixez les supports à la structure porteuse

Halter am Tragwerk befestigen.
Prender os ganchos na estrutura de suporte
將吊架安裝在支撐結構上



Form hanger around cable or waveguide
Adapte el soporte de suspensión al cable o a la guía de onda
Formez le support autour du câble ou du guide d'ondes
Halter um das Kabel oder den Hohlleiter legen.
Moldar o gancho em volta do cabo ou da guia de onda
電纜或波導管周圍的成形吊架



Squeeze locking tabs together, slip nut under opposite tab, and tighten bolt until gap (G) is 5/16" (8 mm)
Ajuste las orejetas de sujeción, deslice la tuerca debajo de la orejeta opuesta y ajuste el perno hasta que la luz G sea de 5/16" (8 mm)
Comprimez les languettes de blocage, glissez l'écrou sous la languette opposée et serrez le boulon jusqu'à ce que l'écart G corresponde à 5/16" (8 mm)

Spernnasen zusammendrücken, Mutter unter die gegenüberliegende Nase schieben, und Bolzen anziehen, bis Spalt G 8 mm breit ist.
Junte as guias de travamento, insira a porca na guia oposta e aperte o parafuso até a folga G atingir 5/16" (8 mm)
將鎖緊薄片擠壓在一起，並將螺母滑入相對的薄片底部，然後將螺栓旋緊至間隙 G 為 5/16 英寸 (8 公釐)

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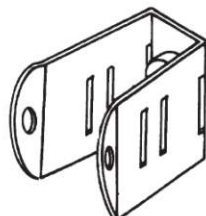
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Hanger Kits

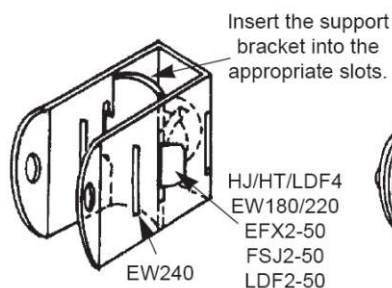
for HELIAX® Elliptical Waveguide and Coaxial Cable



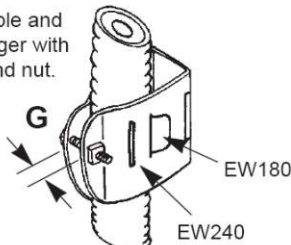
Add Support Bracket



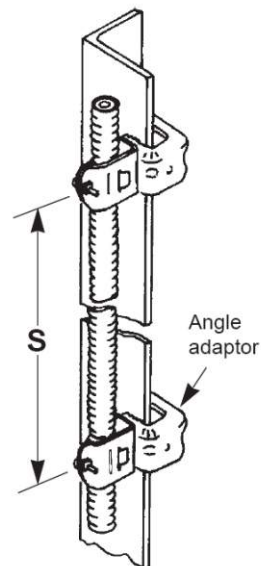
Open the hanger and attach it to an adaptor or a tower member as shown in the examples below.



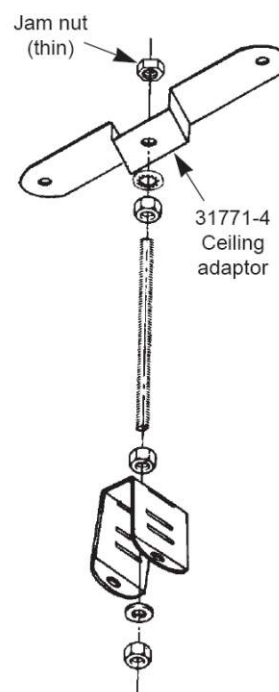
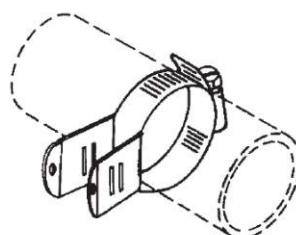
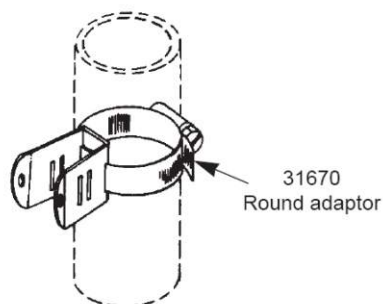
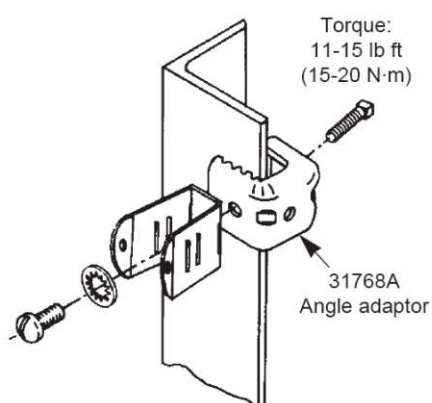
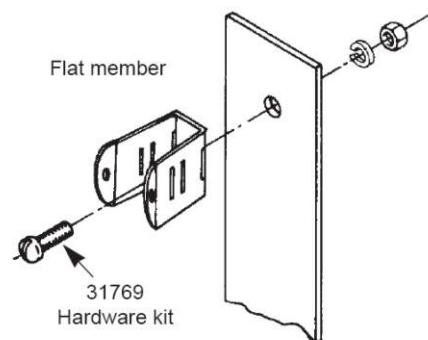
Insert the cable and close the hanger with the screw and nut.



Recommended Hanger Spacing



Attaching Hangers



**204989-6****Standard Grounding Kit for 4 in corrugated coaxial cable and elliptical waveguide 17 and 20**

Dimensions

Nominal Size	4 in
Waveguide Size	WR430 WG8 R22
Bonding Conductor Length	609.6 mm 24 in
Cable Jacketing Removal Length, maximum	59.1 mm 2.3 in
Cable Jacketing Removal Length, minimum	55.9 mm 2.2 in
Compatible Diameter, maximum	104.140 mm 4.100 in
Compatible Diameter, minimum	93.726 mm 3.690 in

Electrical Specifications

Current Handling	Tested to withstand 100,000 amps peak current surge
Current Handling Test Method	MIL-STD-1757
Grounding, Bonding and Shielding Test Method	MIL-STD-188-124A
Lightning Protection Test Method	IEC 1024-1

General Specifications

Cable Type	Corrugated Elliptical waveguide
Grounding Kit Type	Standard Grounding Kits
Color	Black
Bonding Conductor Material	Copper
Bonding Conductor Wire Size	6 gauge
Bonding Conductor Jacketing Material	PE
Grounding Strap Material	Copper
Includes	Grounding kit Hardware Lug One roll of 2 in PVC tape One roll of 24 in butyl rubber tape
Lug Attachment	Factory attached
Lug Type	Two-hole lug
Package Quantity	1
Rivet Material	Copper
Weatherproofing Method	Butyl and electric tape

Mechanical Specifications

Blowing Rain Test Method	MIL-STD-810, Method 506
Corrosion Test Method	MIL-STD-1344, Method 1001
Freezing Rain/Icing Test Method	MIL-STD-810, Method 521
Humidity Test Method	MIL-STD-1344, Method 1002
Immersion Test Method	IEC 60529:2001, IP68
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)

Product Specifications

2049896



Storage Temperature	-40 °C to +80 °C (-40 °F to +176 °F)
Thread Size	3/8 in
UV Resistance Test Method	MIL-STD-810, Method 505
Vibration Test Method	MIL-STD-202, Method 214

Packed Dimensions

Height	447.5 mm		17.6 in
Length	177.8 mm		7.0 in
Shipping Weight	0.74 kg		1.64 lb
Width	395.2 mm		15.6 in

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

- 9905-71 — Black 2 in PVC Tape, 20 ft
- 42615-10 — Butyl Rubber Tape, 24 in

* Footnotes

Grounding, Bonding and Shielding Test Method	Military Standard for Grounding, Bonding, and Shielding: Bond Resistance Requirement of a Maximum dc resistance of 0.001 ohm
Lightning Protection Test Method	Protection Against Lightning Electromagnetic Impulse, Table 1—Protection Level III–IV, 1995-02

**241088-5****Standard Grounding Kit for 2-1/4 in and 3 in corrugated coaxial cable and elliptical waveguide 28 and 37**

Dimensions

Nominal Size	2-1/4 in 3 in
Waveguide Size	WR229 WG11 R40 WR284 WG10 R32
Bonding Conductor Length	609.6 mm 24 in
Cable Jacketing Removal Length, maximum	59.1 mm 2.3 in
Cable Jacketing Removal Length, minimum	55.9 mm 2.2 in
Compatible Diameter, maximum	78.740 mm 3.100 in
Compatible Diameter, minimum	58.674 mm 2.310 in

Electrical Specifications

Current Handling	Tested to withstand 100,000 amps peak current surge
Current Handling Test Method	MIL-STD-1757
Grounding, Bonding and Shielding Test Method	MIL-STD-188-124A
Lightning Protection Test Method	IEC 1024-1

General Specifications

Cable Type	Corrugated Elliptical waveguide
Grounding Kit Type	Standard Grounding Kits
Color	Black
Bonding Conductor Material	Copper
Bonding Conductor Wire Size	6 gauge
Bonding Conductor Jacketing Material	PE
Grounding Strap Material	Copper
Includes	Grounding kit Hardware Lug One roll of 2 in PVC tape One roll of 24 in butyl rubber tape
Lug Attachment	Factory attached
Lug Type	Two-hole lug
Package Quantity	1
Rivet Material	Copper
Weatherproofing Method	Butyl and electric tape

Mechanical Specifications

Blowing Rain Test Method	MIL-STD-810, Method 506
Corrosion Test Method	MIL-STD-1344, Method 1001
Freezing Rain/Icing Test Method	MIL-STD-810, Method 521
Humidity Test Method	MIL-STD-1344, Method 1002
Immersion Test Method	IEC 60529:2001, IP68
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)

Product Specifications

241088-5



Storage Temperature	-40 °C to +80 °C (-40 °F to +176 °F)
Thread Size	3/8 in
UV Resistance Test Method	MIL-STD-810, Method 505
Vibration Test Method	MIL-STD-202, Method 214

Packed Dimensions

Height	447.5 mm		17.6 in
Length	177.8 mm		7.0 in
Shipping Weight	0.74 kg		1.64 lb
Width	395.2 mm		15.6 in

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

- 9905-71 — Black 2 in PVC Tape, 20 ft
- 42615-10 — Butyl Rubber Tape, 24 in

* Footnotes

Grounding, Bonding and Shielding Test Method	Military Standard for Grounding, Bonding, and Shielding: Bond Resistance Requirement of a Maximum dc resistance of 0.001 ohm
Lightning Protection Test Method	Protection Against Lightning Electromagnetic Impulse, Table 1—Protection Level III-IV, 1995-02

**241088-4****Standard Grounding Kit for 1-5/8 in corrugated coaxial cable and elliptical waveguide 52 and 63**

Dimensions

Nominal Size	1-5/8 in
Waveguide Size	WR137 WG14 R70 WR159 WG13 R58
Bonding Conductor Length	609.6 mm 24 in
Cable Jacketing Removal Length, maximum	59.1 mm 2.3 in
Cable Jacketing Removal Length, minimum	55.9 mm 2.2 in
Compatible Diameter, maximum	50.800 mm 2.000 in
Compatible Diameter, minimum	49.022 mm 1.930 in

Electrical Specifications

Current Handling	Tested to withstand 100,000 amps peak current surge
Current Handling Test Method	MIL-STD-1757
Grounding, Bonding and Shielding Test Method	MIL-STD-188-124A
Lightning Protection Test Method	IEC 1024-1

General Specifications

Cable Type	Corrugated Elliptical waveguide
Grounding Kit Type	Standard Grounding Kits
Color	Black
Bonding Conductor Material	Copper
Bonding Conductor Wire Size	6 gauge
Bonding Conductor Jacketing Material	PE
Grounding Strap Material	Copper
Includes	Grounding kit Hardware Lug One roll of 2 in PVC tape One roll of 24 in butyl rubber tape
Lug Attachment	Factory attached
Lug Type	Two-hole lug
Package Quantity	1
Rivet Material	Copper
Weatherproofing Method	Butyl and electric tape

Mechanical Specifications

Blowing Rain Test Method	MIL-STD-810, Method 506
Corrosion Test Method	MIL-STD-1344, Method 1001
Freezing Rain/Icing Test Method	MIL-STD-810, Method 521
Humidity Test Method	MIL-STD-1344, Method 1002
Immersion Test Method	IEC 60529:2001, IP68
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)

Product Specifications

241088-4



Storage Temperature	-40 °C to +80 °C (-40 °F to +176 °F)
Thread Size	3/8 in
UV Resistance Test Method	MIL-STD-810, Method 505
Vibration Test Method	MIL-STD-202, Method 214

Packed Dimensions

Height	304.8 mm		12.0 in
Length	25.4 mm		1.0 in
Shipping Weight	0.72 kg		1.58 lb
Width	279.4 mm		11.0 in

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

- 9905-71 — Black 2 in PVC Tape, 20 ft
- 42615-10 — Butyl Rubber Tape, 24 in

* Footnotes

Grounding, Bonding and Shielding Test Method	Military Standard for Grounding, Bonding, and Shielding: Bond Resistance Requirement of a Maximum dc resistance of 0.001 ohm
Lightning Protection Test Method	Protection Against Lightning Electromagnetic Impulse, Table 1—Protection Level III–IV, 1995-02



241088-2

Standard Grounding Kit for 5/8 in and 7/8 in corrugated coaxial cable and elliptical waveguide 85, 90, 127A, and 132

Dimensions

Nominal Size	5/8 in 7/8 in
Waveguide Size	WR62 WG18 R140 WR75 WG17 R120 WR90 WG16 R100
Bonding Conductor Length	609.6 mm 24 in
Cable Jacketing Removal Length, maximum	59.1 mm 2.3 in
Cable Jacketing Removal Length, minimum	55.9 mm 2.2 in
Compatible Diameter, maximum	28.702 mm 1.130 in
Compatible Diameter, minimum	21.336 mm 0.840 in

Electrical Specifications

Current Handling	Tested to withstand 100,000 amps peak current surge
Current Handling Test Method	MIL-STD-1757
Grounding, Bonding and Shielding Test Method	MIL-STD-188-124A
Lightning Protection Test Method	IEC 1024-1

General Specifications

Cable Type	Corrugated Elliptical waveguide
Grounding Kit Type	Standard Grounding Kits
Color	Black
Bonding Conductor Material	Copper
Bonding Conductor Wire Size	6 gauge
Bonding Conductor Jacketing Material	PE
Grounding Strap Material	Copper
Includes	Grounding kit Hardware Lug One roll of 2 in PVC tape One roll of 24 in butyl rubber tape
Lug Attachment	Factory attached
Lug Type	Two-hole lug
Package Quantity	1
Rivet Material	Copper
Weatherproofing Method	Butyl and electric tape

Mechanical Specifications

Blowing Rain Test Method	MIL-STD-810, Method 506
Corrosion Test Method	MIL-STD-1344, Method 1001
Freezing Rain/Icing Test Method	MIL-STD-810, Method 521
Humidity Test Method	MIL-STD-1344, Method 1002
Immersion Test Method	IEC 60529:2001, IP68
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)

Product Specifications

241088-2



Storage Temperature	-40 °C to +80 °C (-40 °F to +176 °F)
Thread Size	3/8 in
UV Resistance Test Method	MIL-STD-810, Method 505
Vibration Test Method	MIL-STD-202, Method 214

Packed Dimensions

Height	266.7 mm 10.5 in
Length	57.2 mm 2.3 in
Shipping Weight	0.72 kg 1.58 lb
Width	266.7 mm 10.5 in

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

- 9905-71 — Black 2 in PVC Tape, 20 ft
- 42615-10 — Butyl Rubber Tape, 24 in

* Footnotes

Grounding, Bonding and Shielding Test Method	Military Standard for Grounding, Bonding, and Shielding: Bond Resistance Requirement of a Maximum dc resistance of 0.001 ohm
Lightning Protection Test Method	Protection Against Lightning Electromagnetic Impulse, Table 1—Protection Level III–IV, 1995-02

**241088-1****Standard Grounding Kit for 1/2 in corrugated coaxial cable and elliptical waveguide 180 and 220**

Dimensions

Nominal Size	1/2 in
Waveguide Size	WR42 WG20 R220 WR51 WG19 R180
Bonding Conductor Length	609.6 mm 24 in
Cable Jacketing Removal Length, maximum	59.1 mm 2.3 in
Cable Jacketing Removal Length, minimum	55.9 mm 2.2 in
Compatible Diameter, maximum	16.510 mm 0.650 in
Compatible Diameter, minimum	15.494 mm 0.610 in

Electrical Specifications

Current Handling	Tested to withstand 100,000 amps peak current surge
Current Handling Test Method	MIL-STD-1757
Grounding, Bonding and Shielding Test Method	MIL-STD-188-124A
Lightning Protection Test Method	IEC 1024-1

General Specifications

Cable Type	Corrugated Elliptical waveguide
Grounding Kit Type	Standard Grounding Kits
Color	Black
Bonding Conductor Material	Copper
Bonding Conductor Wire Size	6 gauge
Bonding Conductor Jacketing Material	PE
Grounding Strap Material	Copper
Includes	Grounding kit Hardware Lug One roll of 2 in PVC tape One roll of 24 in butyl rubber tape
Lug Attachment	Factory attached
Lug Type	Two-hole lug
Package Quantity	1
Rivet Material	Copper
Weatherproofing Method	Butyl and electric tape

Mechanical Specifications

Blowing Rain Test Method	MIL-STD-810, Method 506
Corrosion Test Method	MIL-STD-1344, Method 1001
Freezing Rain/Icing Test Method	MIL-STD-810, Method 521
Humidity Test Method	MIL-STD-1344, Method 1002
Immersion Test Method	IEC 60529:2001, IP68
Operating Temperature	-40 °C to +85 °C (-40 °F to +185 °F)

Product Specifications

241088-1



Storage Temperature	-40 °C to +80 °C (-40 °F to +176 °F)
Thread Size	3/8 in
UV Resistance Test Method	MIL-STD-810, Method 505
Vibration Test Method	MIL-STD-202, Method 214

Packed Dimensions

Height	266.7 mm		10.5 in
Length	57.2 mm		2.3 in
Shipping Weight	0.72 kg		1.58 lb
Width	266.7 mm		10.5 in

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

- 9905-71 — Black 2 in PVC Tape, 20 ft
- 42615-10 — Butyl Rubber Tape, 24 in

* Footnotes

Grounding, Bonding and Shielding Test Method	Military Standard for Grounding, Bonding, and Shielding: Bond Resistance Requirement of a Maximum dc resistance of 0.001 ohm
Lightning Protection Test Method	Protection Against Lightning Electromagnetic Impulse, Table 1—Protection Level III–IV, 1995-02



9905-71
Black 2 in PVC Tape, 20 ft

Dimensions

Nominal Size	1-1/4 in 1-5/8 in 1/2 in 1/4 in 2-1/4 in 3/8 in 5/8 in 7/8 in
Length	6.10 m 20.00 ft
Width	50.80 mm 2.00 in

General Specifications

Application	Provides additional moisture seal for cable connections
Applications per Kit	Four 1/2 in-1/2 in Four 1/2 in-7/8 in to device One 1/2 in-2-1/4 in Two 1/2 in-7/8 in
Color	Black
Material Type	PVC tape
Package Quantity	1

Mechanical Specifications

UV Resistance Test Method	PVC tape test method UL 510, ASTM D1000
Weather Resistance Test Method	04AS00-03.6.0 MIL-STD-1344A, Method 1002

Packed Dimensions

Height	6.4 cm 2.5 in
Length	5.1 cm 2.0 in
Shipping Weight	0.08 kg 0.19 lb
Width	6.4 cm 2.5 in

Regulatory Compliance/Certifications

Agency	Classification
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



42615-10
Butyl Rubber Tape, 24 in

Dimensions

Nominal Size	1-1/4 in 1-5/8 in 1/2 in 1/4 in 2-1/4 in 3/8 in 5/8 in 7/8 in
Length	609.60 mm 24.00 in
Width	63.50 mm 2.50 in

General Specifications

Application	Provides additional moisture seal for cable connections
Applications per Kit	One 1/2 in-2-1/4 in One 1/2 in-7/8 in One 1/2 in-7/8 in to device Two 1/2 in-1/2 in
Color	Black
Material Type	Butyl rubber tape
Package Quantity	1

Mechanical Specifications

UV Resistance Test Method	Butyl test method in QUV weatherometer cycle of 8 hours UV at 150 °F then 4 hours of condensation at 104 °F
UV Resistance, minimum with no degradation	=1000 hours
Weather Resistance Test Method	04AS00-03.6.0 MIL-STD-1344A, Method 1002

Packed Dimensions

Height	6.4 cm 2.5 in
Length	2.5 cm 1.0 in
Shipping Weight	0.17 kg 0.37 lb
Width	69.9 mm 2.8 in

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant
China RoHS SJ/T 11364-2006	Below Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



Installation Instructions

Bulletin 237549

Revision B

Grounding Kits

for HELIAX® Elliptical Waveguide and Coaxial Cable

Juegos de Conexión a Tierra

para la guía de ondas elíptica y cable coaxial HELIAX®

Kits de mise à la terre

pour guide d'ondes elliptique et câble coaxial HELIAX®

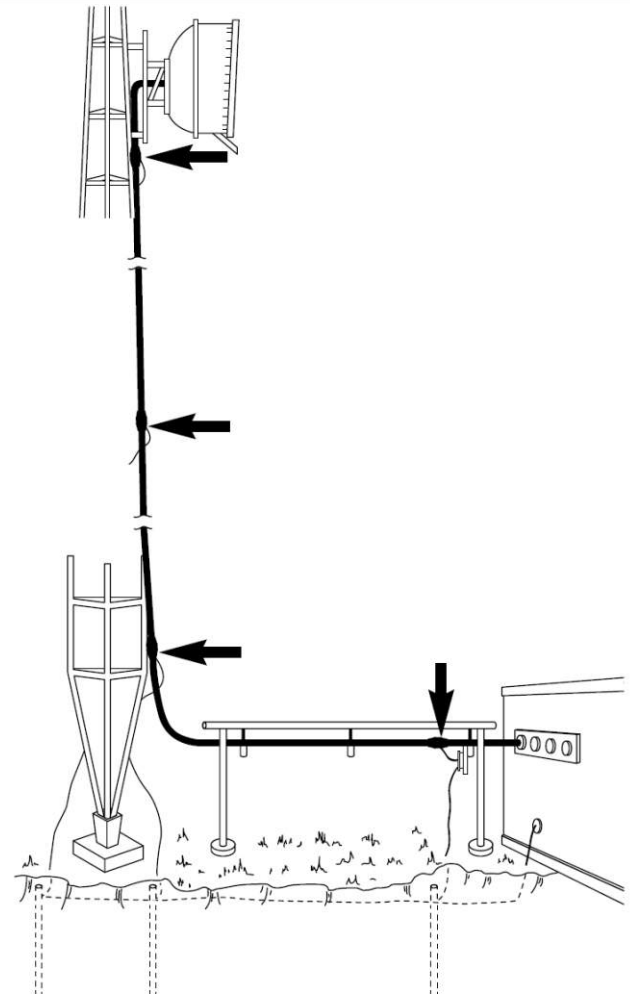
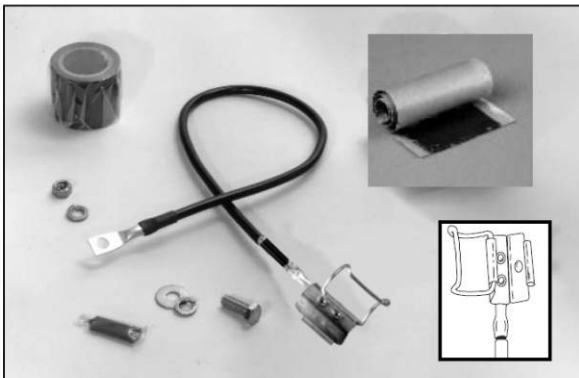
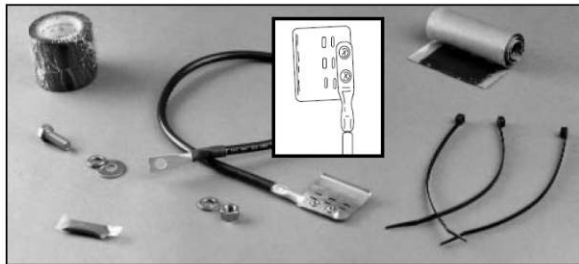
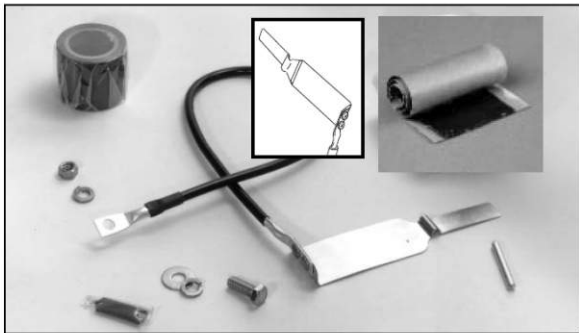
Erdungsschelle

für elliptische HELIAX®-Hohlleiter und Koaxialkabel

Kits de aterramento

para guía de ondas elíptico e cabos coaxiais HELIAX®

HELIAX® 橢圓形波導管與同軸電纜的接
地元件





WARNING

Do not attempt grounding kit installation in the presence of thunderstorms. Failure to obey this warning may result in injury or death to you or to others.



ADVERTENCIA

No intente a instalar el kit de tierra durante una tormenta. El resultado de no obedecer esta advertencia puede causar la muerte a usted o a otros.



AVERTISSEMENT

Ne tentez aucune installation du kit de mise à la terre en cas d'orage. Le non-respect de cet avertissement peut engendrer des blessures ou la mort de l'utilisateur ou d'autres personnes.



WARNUNG!

Erden Sie den fertig montierten Bausatz keinesfalls bei einem Gewitter. Nichtbeachtung kann zu Verletzung oder Tod führen.



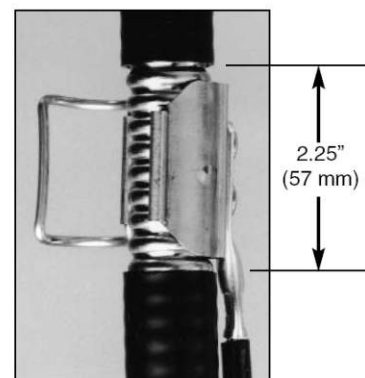
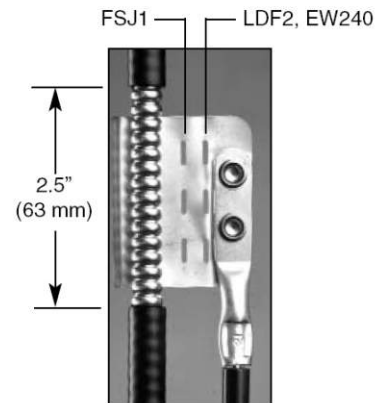
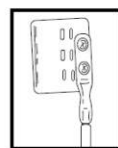
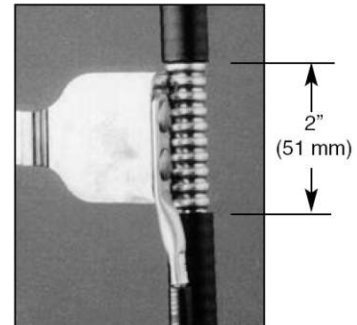
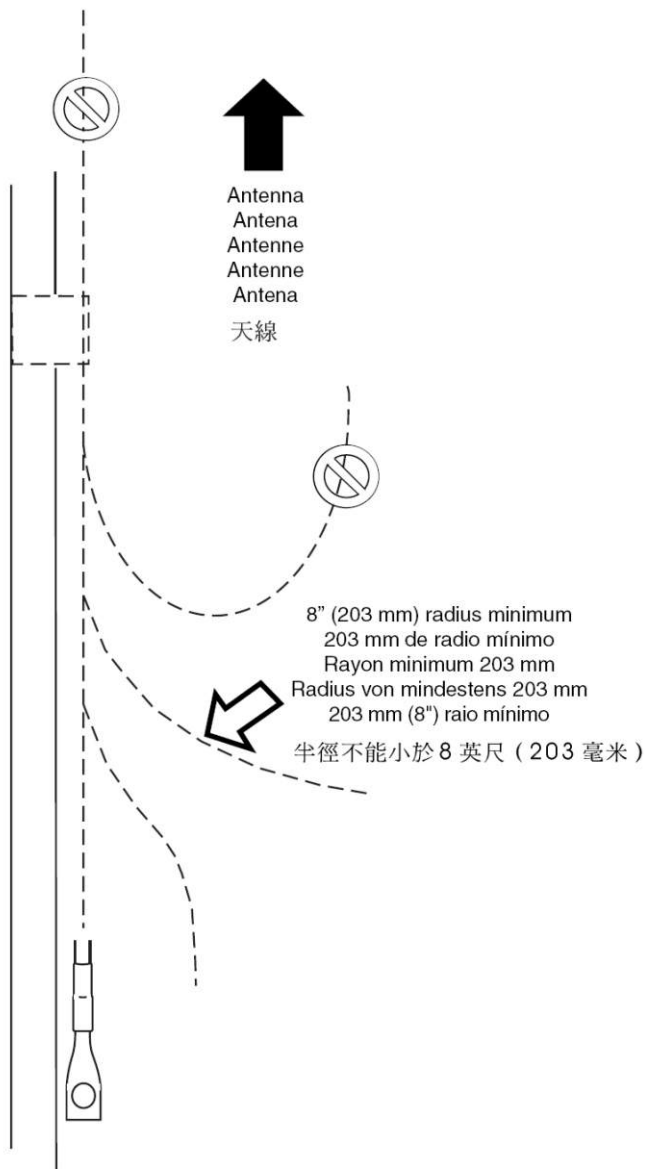
ADVISO

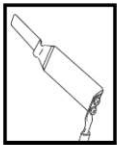
Nao tente aterrar o kit de instalação durante tempestades. Pode provocar dano físico ou morte a você ou a terceiros.



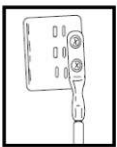
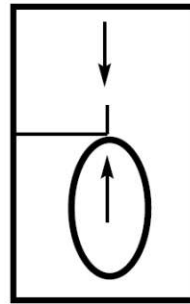
警告

不要試圖在有雷雨時安裝接地元件。
不遵守該警告可能會對你和其他人造成傷害或死亡。

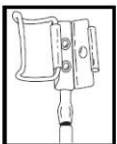
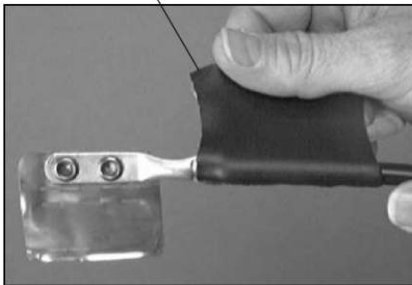




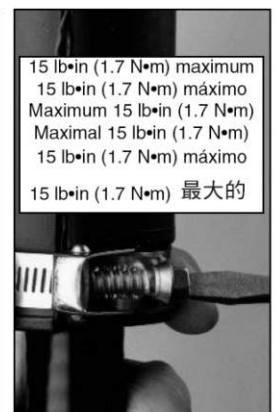
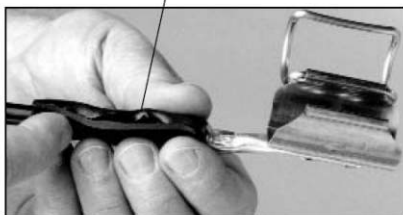
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(38 x 63.5 mm)



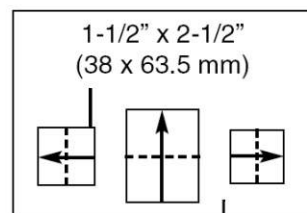
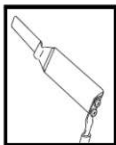
1-1/2" x 2-1/2"
(38 x 63.5 mm)



1-1/2" x 2-1/2"
(38 x 63.5 mm)



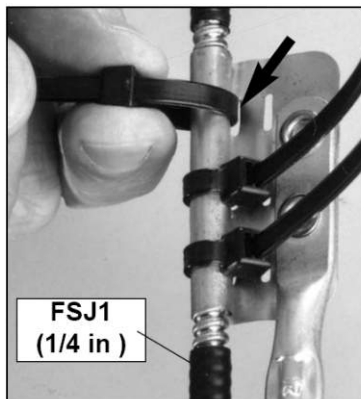
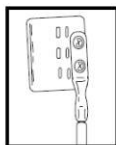
15 lb•in (1.7 N•m) maximum
15 lb•in (1.7 N•m) máximo
Maximum 15 lb•in (1.7 N•m)
Maximal 15 lb•in (1.7 N•m)
15 lb•in (1.7 N•m) máximo
15 lb•in (1.7 N•m) 最大的



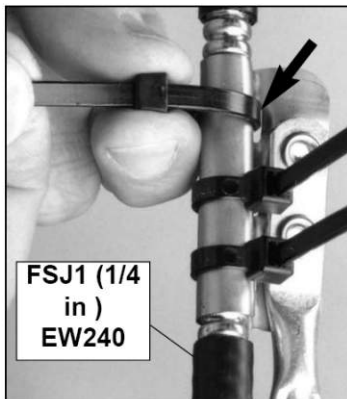
Stop tightening
Deje de apretar
Arrêter de serrer
Aufhören festzuziehen
Pare de apertar
停止緊固



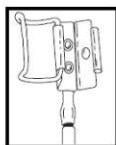
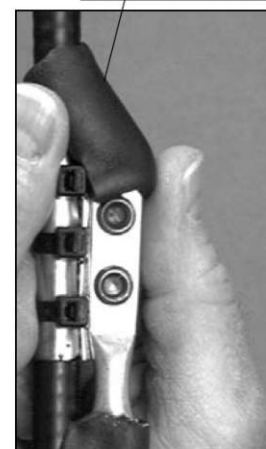
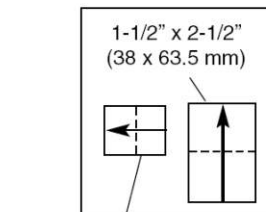
Overtightened
Demasiado apretada
Sur serré
Zu stark festgezogen
Aperte demais
過度緊固



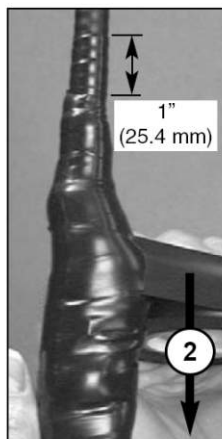
FSJ1
(1/4 in)



FSJ1 (1/4
in)
EW240

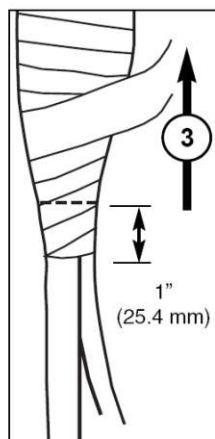


1



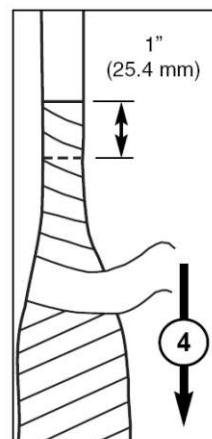
1"
(25.4 mm)

2



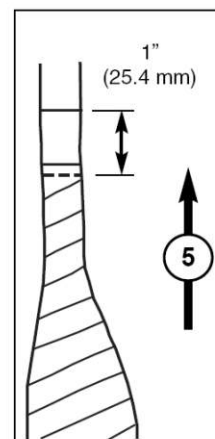
3

1"
(25.4 mm)

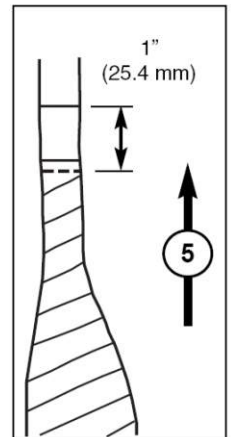
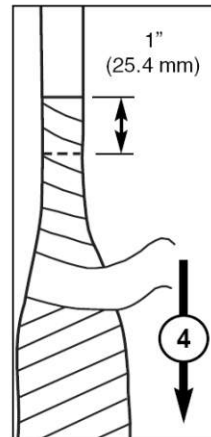
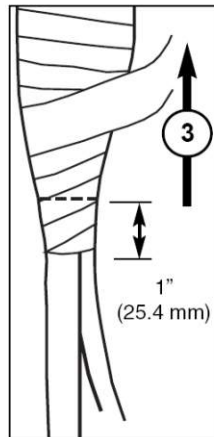
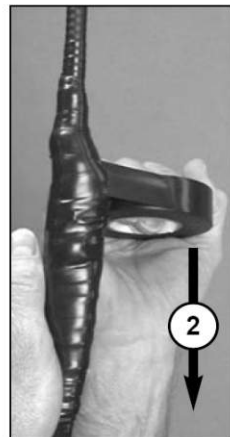
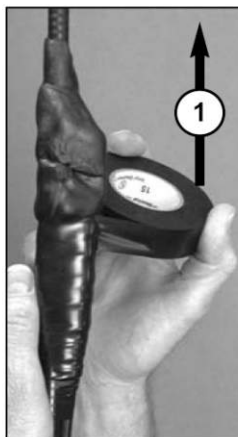
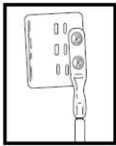
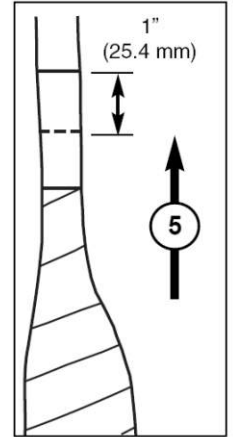
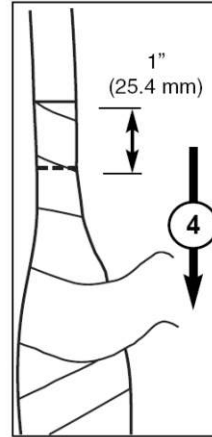
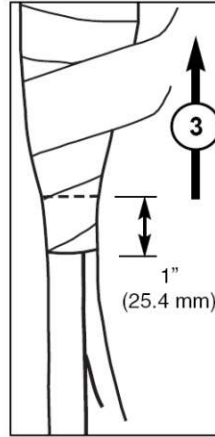
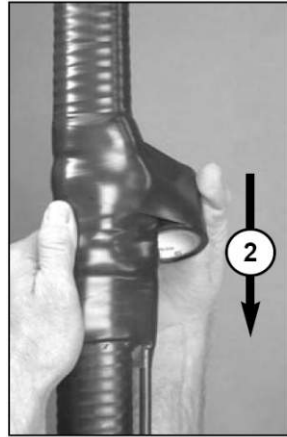
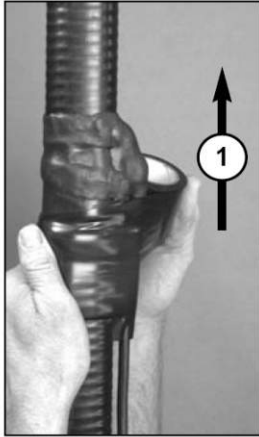
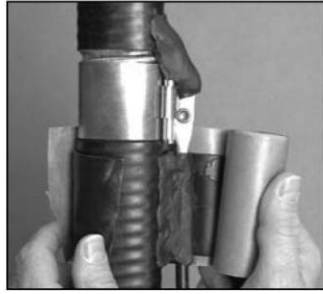
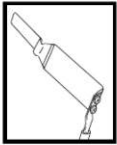


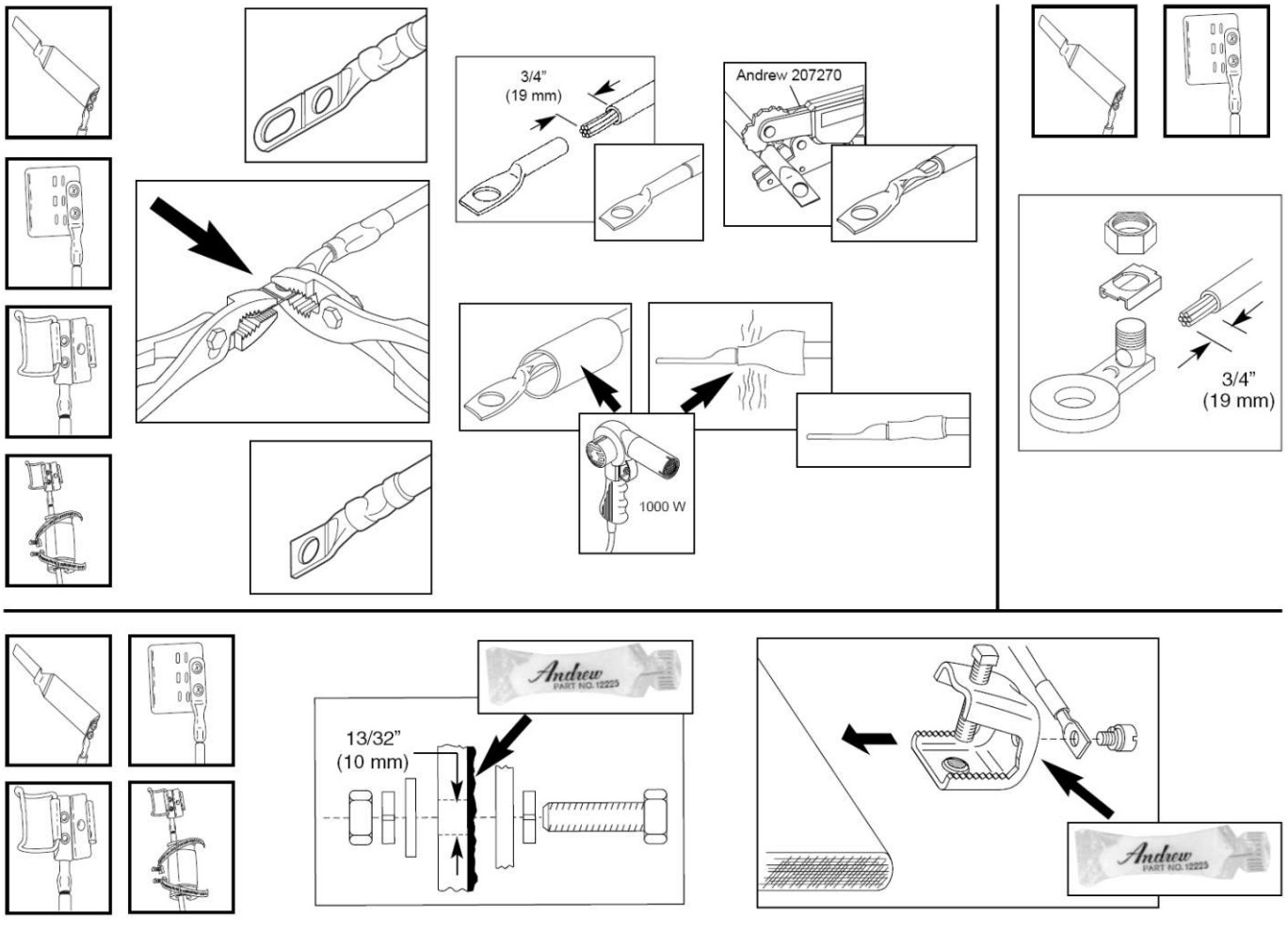
1"
(25.4 mm)

4



5





Notice

The installation, maintenance, or removal of antenna systems requires qualified, experienced personnel. Andrew installation instructions are 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.

Advertencia

Se requiere que la instalación, el mantenimiento o el retiro de los sistemas de antenas sea efectuado por personal calificado y con experiencia. Las instrucciones de instalación de Andrew se han escrito pensando en esta clase de personal. Se deben inspeccionar los sistemas de antenas una vez al año utilizando personal calificado a fin de verificar si la instalación, el mantenimiento y la condición del equipo son adecuados.

Andrew no asume ninguna responsabilidad ni obligación resultante de las prácticas de instalación o inseguras.

Avis

L'installation, la maintenance et la dépose des systèmes d'antennes doivent être effectuées par des techniciens qualifiés. Les instructions de montage Andrew ont été prévues pour un tel personnel. Les systèmes d'antennes doivent être inspectés tous les ans par des techniciens qualifiés afin de vérifier l'installation, la maintenance et l'état des équipements.

Andrew décline toute responsabilité dans le cas de non respect de ces instructions.

Anmerkung

Die Installierung, Wartung oder Abnahme eines Antennensystems erfordert qualifiziertes und geschultes Personal, für das auch die Andrew Montageanweisungen geschrieben worden sind. Antennensysteme sollten jährlich von qualifiziertem Personal überprüft werden, um die einwandfreie Montage, Wartung und den Zustand der Systemkomponenten sicherzustellen.

Andrew lehnt jede Haftung oder Verantwortung für Schäden ab, die aufgrund unsachgemäßer Installierung auftreten.

Atenção

A instalação, manutenção ou remoção dos sistemas de antena requer pessoal experiente e qualificado. As instruções de instalação da Andrew foram escritas para estas pessoas. Os sistemas de antena, devem ser inspecionados pelo pessoal qualificado, uma vez por ano, para verificar a instalação e manutenção adequadas e as condições do equipamento.

A Andrew não se responsabiliza por resultados advindos de práticas de instalação inadequadas ou inseguras.

注意：天線系統的安裝、維護與拆卸，必須由有經驗的合格技術人員進行。Andrew 安裝指示是專為該技術人員所編寫的。天線系統每年必須由合格的技術人員檢查一次，以確保設備的安裝、保養及狀況良好。Andrew 公司申明對於不恰當或不安全的安裝所導致的後果，一概不負任何義務和責任。



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U.K.: 0800 250055 • Other Europe: +44 1592 782612

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