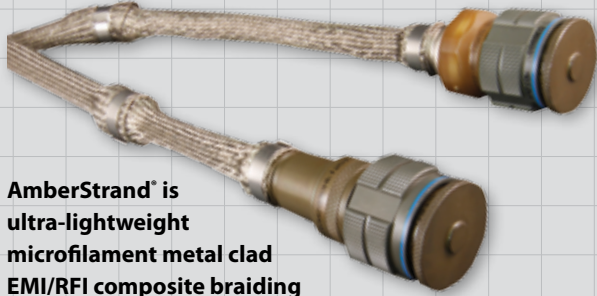




## AmberStrand® Lightweight Composite Metal-Clad EMI/RFI Braided Shielding

# AmberStrand®

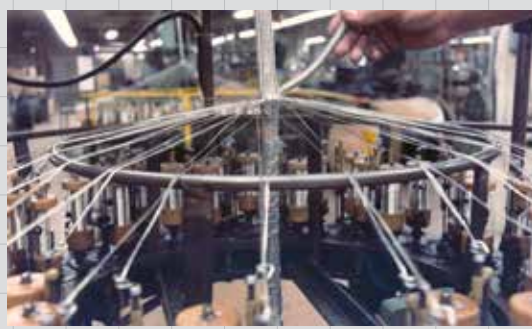


AmberStrand® is ultra-lightweight microfilament metal clad EMI/RFI composite braiding

- Metal-clad EMI/RFI Shielding with a lightweight composite thermoplastic base material
- Highly conductive surface plating
- Reduce shielding weight up to 80% and more
- Reduce operation costs by permanently reducing launch and aircraft all-up weights
- Superior high frequency shielding compared to tinned and/or nickel plated copper
- Exceptional tensile strength: 590,000 psi (min)



### AmberStrand®: The smart way to reduce launch and flight weights in aerospace systems



Composite strain-relief backshell with integrated AmberStrand® lightweight composite metal-clad braid shield sock.



100%  
AmberStrand®

75%/25%  
AmberStrand® Blend

103 - 026 - 024

103 - 027 - 024

Diameter Dash  
Number

Diameter Dash  
Number

Glennair can also offer AmberStrand® users direct factory overbraiding services for both point-to-point as well as multi-branch interconnect assemblies.

#### How does Amberstrand® compare, in terms of mechanical performance, to other materials?

Material Type	AmberStrand® Thermoplastic	PEEK (Monofil)	Fluoro-polymer (Yarn)	Kevlar (Yarn)	Dacron (Yarn)	Halar (Monofil)	Fluoro-polymer FEP (Monofil)	Nomex (Yarn)	Polyester Type FR (Monofil)	Ryton Type R-7 (Monofil)	PTFE-Glass (Yarn)
Glennair P/N	103-026 103-027	102-051	102-061	102-071	102-073	102-023	102-060	103-013	102-001 102-002	102-080	100-022
Temperature Range	-65°C to +200°C	-65°C to +260°C	-55°C to +200°C	-73°C to +175°C	-62°C to +150°C	-65°C to +200°C	-55°C to +260°C	-55°C to +125°C	-55°C to +200°C	-65°C to +200°C	-75°C to +525°C
Tensile Strength (PSI) Yield	590,000	780,000	40,000	400,000	160,000	35,000	14,000	90,000	50,000	19,000	450,000
Elongation Percentage	2.5%	38%	19%	3.6%	12%	15%	50%	25%	20%	35%	5%
Chemical Resistance	Excellent	Excellent	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Abrasion Resistance	Good	Excellent	Good	Good	Excellent	Excellent	Good	Good	Good	Excellent	Excellent
Specific Gravity	1.45	1.30	2.10	1.44	1.38	1.68	2.17	1.58	1.38	1.25	2.50
Flammability	Will Not Burn	Very Low	Will Not Burn	Will Not Melt	Flammable	Flammable	Very Low	Will Not Melt	Very Low	Very Low	Will Not Burn

Dimensions in inches (millimeters) and are subject to change without notice.

# AmberStrand® Lightweight Composite Metal-Clad EMI/RFI Braided Shielding



Supplemental Product Information

## Aircraft Utilization Analysis

Comparison of AmberStrand® Composite EMI/RFI braid to 36 AWG A-A-59569 Ni/Cu Braid results in 60+ pounds weight savings in a typical commercial carrier

**Where is all the EMI/RFI braid deployed in a typical commercial aircraft?**

Diameter (in)	L Wing	R Wing	Fwd Belly	Aft Belly	HYD Bay	Aft Barrel	Tail	V/H Stab	Totals (in)
0 - 0.25	1852.2	1852.2	0	2811.4	168.2	2015.2	2480.6	1385	12564.8
0.25 - 0.5	434.8	434.8	511.6	1034.6	257.4	506.2	958.2	1121.7	5259.3
0.5 - 0.75	0	0	260.9	223	0	184.2	392.4	152.1	1212.6
0.75 - 1.0	0	0	77.2	0	0	1198	162.2	0	1437.4
1.0 - 1.5	0	0	0	0	0	446	21	0	467

**How much would all this braid weigh if it was made of 36 AWG A-A-59569 NiCu?**

Diameter (in)	Weight (Lb/ft)	Length (in)	Weight (Lb)
0 - 0.25	0.02	12564.8	21.08
0.25 - 0.5	0.05	5259.3	21.17
0.5 - 0.75	0.07	1212.6	7.12
0.75 - 1.0	0.14	1437.4	16.88
1.0 - 1.5	0.18	467	7.05
		Total weight	73.30 lbs

**How much would all this braid weigh if it was made of lightweight composite AmberStrand® ?**

Diameter (in)	Weight (Lb/ft)	Length (in)	Weight (Lb)
0 - 0.25	0.003	12564.8	4.16
0.25 - 0.5	0.008	5259.3	3.58
0.5 - 0.75	0.011	1212.6	1.16
0.75 - 1.0	0.018	1437.4	2.11
1.0 - 1.5	0.034	467	1.30
		Total weight	12.31 lbs

**Expressed in percentages, how does 100% and 75% metal clad AmberStrand® compare against tin-coated copper?**

Braid Diameter	AmberStrand® 100% 103-026	Tinned Copper 100-001	% Weight Savings/Foot	AmberStrand® 75/25 NiCu% 103-027	Tinned Copper 100-001	% Weight Savings/Foot
.062	.6	1.9	68%	.9	1.9	52%
.125	1.0	4.8	79%	1.5	4.8	68%
.250	1.8	16.1	88%	2.4	16.1	85%
.375	2.3	18.5	87%	3.9	18.5	79%
.500	3.7	22.3	83%	5.4	22.3	76%
.625	4.4	27.7	84%	6.4	27.7	77%
.750	5.2	34.3	85%	7.2	34.3	79%
1.000	8.0	35.0	77%	11.0	35.0	69%

## 103-031 AmberStrand® Lightweight Metal-Clad Spooled Fiber

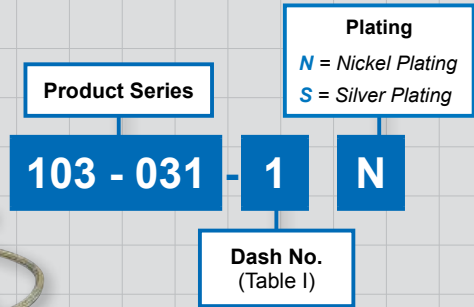


Table I	
Part Number	Spool Specification
103-031-1	Single End Spooled 3000 FT. Per Spool
103-031-2	Double End Spooled 1250 FT. Per Spool
103-031-3	Three End Spooled 833 FT. Per Spool
103-031-4	Four End Spooled 625 FT. Per Spool
103-031-5	Double End Spooled 500 FT. Per Spool
103-031-6	Six End Spooled 400 FT. Per Spool

Dimensions in inches (millimeters) and are subject to change without notice.

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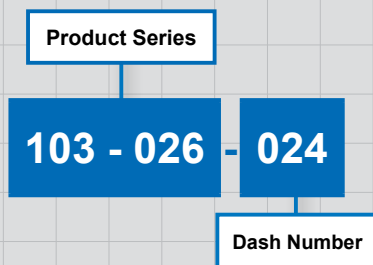


## AmberStrand® Lightweight Composite Metal-Clad EMI/RFI Braided Shielding

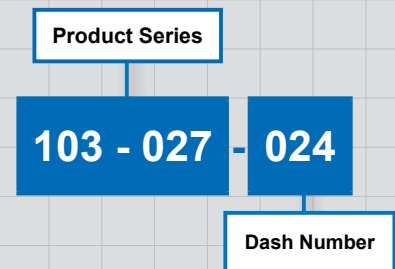
# AmberStrand®

**103-026 and -027 AmberStrand® EMI/RFI Microfilament Composite Braided Shielding 100% Composite and 75%/25% Blended Versions**

### EMI/RFI Braid: How-To-Order



100% AmberStrand®



75%/25% AmberStrand®/Nickel Copper

103-026 100% Composite AmberStrand®			
Part No.	Inner Diameter	Ref. Wire Bundle Range	Approximate Grams Per Foot
103-026-004	.125 (3.2)	.093 (2.4)	1.0
		.140 (3.5)	
103-026-008	.250 (6.4)	.125 (3.2)	1.8
		.312 (7.9)	
103-026-012	.375 (9.5)	.325 (8.2)	2.3
		.437 (11.1)	
103-026-016	.500 (12.7)	.375 (9.5)	3.7
		.560 (14.2)	
103-026-020	.625 (15.9)	.375 (9.5)	4.4
		.700 (17.8)	
103-026-024	.750 (19.1)	.500 (12.7)	5.2
		.830 (21.1)	
103-026-032	1.000 (25.4)	.780 (19.8)	8.0
		1.100 (27.94)	
103-026-040	1.250 (31.8)	.938 (23.8)	10.0
		1.312 (33.3)	
103-026-048	1.500 (38.1)	1.187 (30.1)	15.2
		1.590 (40.37)	
103-026-064	2.000 (50.8)	1.312 (33.3)	22.0
		2.090 (53.08)	

103-027 75%/25% Blended Composite AmberStrand®/Nickel Copper			
Part No.	Inner Diameter	Ref. Wire Bundle Range	Approximate Grams Per Foot
103-027-004	.125 (3.2)	.093 (2.4)	1.5
		.140 (3.5)	
103-027-008	.250 (6.4)	.125 (3.2)	2.4
		.312 (7.9)	
103-027-012	.375 (9.5)	.250 (6.4)	3.9
		.437 (11.1)	
103-027-016	.500 (12.7)	.375 (9.5)	6.0
		.550 (13.9)	
103-027-020	.625 (15.9)	.375 (9.5)	6.4
		.700 (17.8)	

*Specify length on purchase order. No minimums!*  
Additional sizes and configurations- consult factory

Dimensions in inches (millimeters) and are subject to change without notice.