Band-Master ATS®

Standard banding tools and bands

STANDARD BANDING TOOL

Color-coded tool handle:

= Standard; Black

The 601-100 Band-Master™ ATS Standard Tool with Counter for Standard Bands

Weighs approximately 1.30 lbs., and is designed for .240" width clamping bands in a tension range from 100 to 180 lbs. Calibrate at 150 lbs. ± 5 lbs. for most shield terminations. Tool and band should never be lubricated.

The 600-058 QPL Qualified (M81306/1A) Standard Banding Tool without Counter

Weighs 1.22 and is designed for .240" width clamping bands in a tension range from 100 to 180 lbs. Calibrate at 150 lbs. ± 5 lbs. for most shield terminations. Tool and band should never be lubricated (not shown).

Band-Master ATS® Standard Band Selection						
	Length		Part Number		Fits Diameter	
Bands	In.	mm.	Flat	Pre-Coiled	In.	mm.
Short Standard	9.0	228.6	601-005	601-006	1.0	25.4
Medium Standard	14.25	361.95	601-040	601-041	1.8	45.7
Long Standard	18.0	457.2	601-049	601-050	2.5	63.5

Cable Pull Strength for Band-Master ATS® Standard Bands							
Name	Material Type	Band Width		Band Thickness		Calibration Setting	Cable Pull Strength
		In	mm	In	mm		
Standard	300 SS	0.240	6.10	.020	.51	150 ±5 lbs	per AS85049/128

QPL Qualified Standard Band Selection						
	Length		Mil Spec Part Number		Fits Diameter	
Bands	in.	mm.	Flat	Pre-Coiled	in.	mm.
Standard Band	14.25	361.95	M85049/128-3	M85049/128-4	1.8	45.7

Cable Pull Strength for Standard QPL Qualified Bands							
Name	Material Type	Band Width		Band Thickness		Calibration Setting	Cable Pull Strength
		In	mm	In	mm		
Standard	300 SS	0.240	6.10	.020	.51	150 ±5 lbs	per AS85049/128

Band-Master ATS®

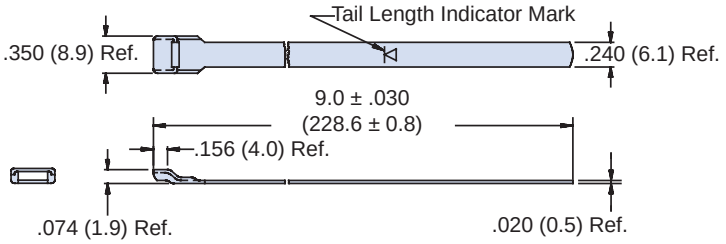
Standard banding tools and bands

SPACE GRADE
NASA
ESA, JAXA
SCREENED

STANDARD BANDS

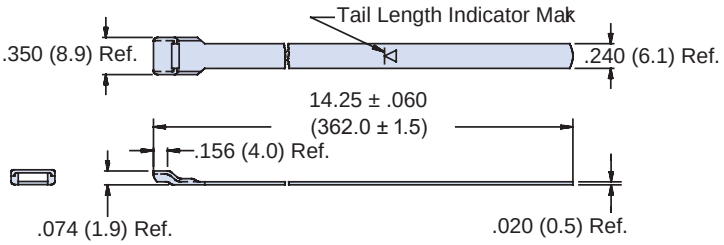
Short Flat 601-005
Short Precoiled 601-006

Standard bands are precision constructed of 300 Series SST passivate IAW AMS 2700 . Short standard bands are 9.00 inches (228.6) in length and designed for use with the Band-Master ATS® 601-100 manual banding tool or the 601-106 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately 1.0 inches (25.4).



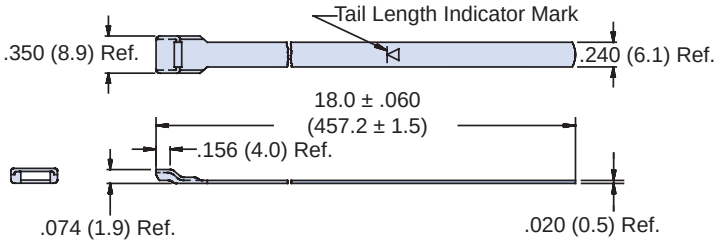
Medium Flat 601-040
Medium Precoiled 601-041

Standard bands are precision constructed of 300 Series SST passivate IAW AMS 2700. Medium standard bands are 14.25 inches (361.95) in length and designed for use with the Band-Master ATS® 601-100 manual banding tool or the 601-106 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately 1.8 inches (45.7).



Long Flat 601-049
Long Precoiled 601-050

Standard bands are precision constructed of 300 Series SST passivate IAW AMS 2700. Long standard bands are 18.0 inches (457.2) in length and designed for use with the Band-Master ATS® 601-100 manual banding tool or the 601-106 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately 2.5 inches (63.5).



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

Band-Master ATS®

Micro banding tools and bands

MICRO BANDING TOOL

Color-coded tool handle:

= Micro; Blue

The 601-101 Band-Master ATS® Micro Tool with Counter for Micro Bands

Weighs approximately 1.20 lbs., and is designed for micro .120" width clamping bands in a tension range from 50 to 85 lbs. Calibrate at 80 lbs ±3 lbs. for most shield terminations. Tool and band should never be lubricated.

The 600-061 QPL Qualified (M81306/1B) Micro Banding Tool without Counter

Weighs 1.11 and is designed for micro .120" width clamping bands in a tension range from 60 to 85 lbs. Calibrate at 80 lbs ±5 lbs. for most shield terminations. Tool and band should never be lubricated (not shown).

	Band-Master ATS® Micro Band Selection					
	Length		Part Number		Fits Diameter	
Bands	in.	mm.	Flat	Pre-Coiled	in.	mm.
Short Micro	5.0	127.0	601-024	601-025	0.5	12.7
Medium Micro	8.125	206.4	601-060	601-061	.88	22.4
Long Micro	14.25	362.0	601-064	601-065	1.8	45.7

Cable Pull Strength for Band-Master ATS® Micro Bands							
Name	Material Type	Band Width		Band Thickness		Calibration Setting	Cable Pull Strength
		In	mm	In	mm		
Micro	300 SS	0.120	3.05	.015	.38	80 ±5 lbs	per AS85049/128

	QPL Qualified Micro Band Selection					
	Length		Part Number		Fits Diameter	
Bands	in.	mm.	Flat	Pre-Coiled	in.	mm.
Standard Micro	8.125	206.4	M85049/128-7	M85049/128-8	.88	22.4

Cable Pull Strength for Micro QPL Qualified Bands							
Name	Material Type	Band Width		Band Thickness		Calibration Setting	Cable Pull Strength
		In	mm	In	mm		
Micro	300 SS	0.120	3.05	.015	.38	80 ±5 lbs	per AS85049/128

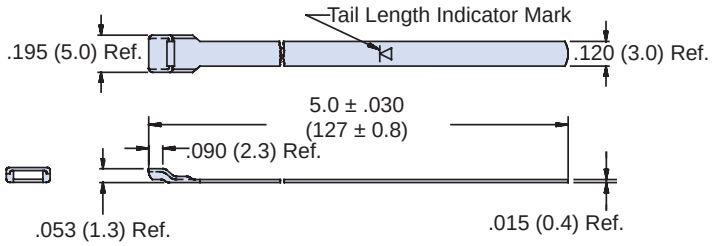
Band-Master ATS®

Micro banding tools and bands

MICRO BANDS

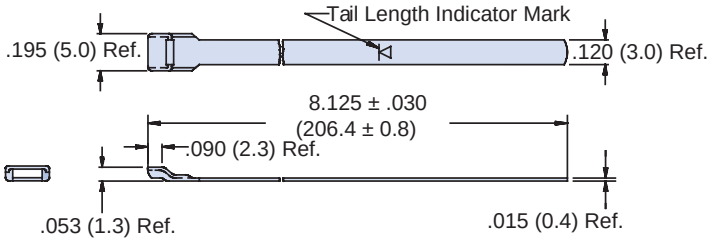
Short Flat 601-024
Short Precoiled 601-025

Micro Bands are precision constructed of 300 Series SST passivate IAW AMS 2700. Short Micro Bands are 5.00 inches (127) in length and designed for use with the Band-Master ATS® 601-101 hand banding tool or the 601-107 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately .5 inches (12.7).



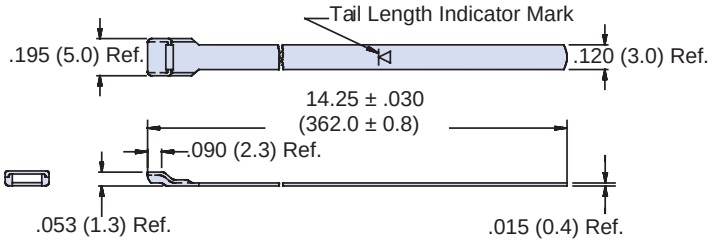
Medium Flat 601-060
Medium Precoiled 601-061

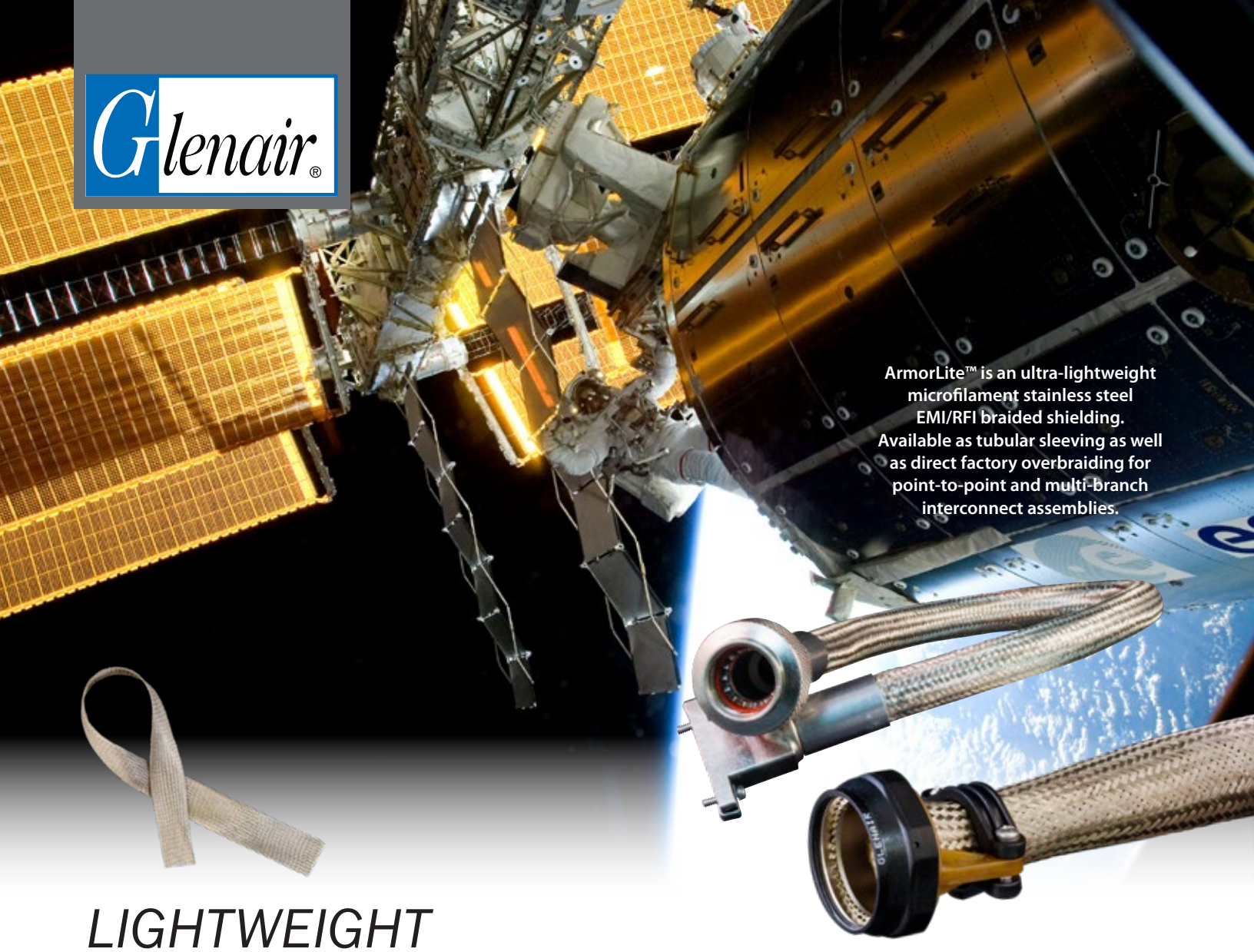
Micro Bands are precision constructed of 300 Series SST passivate IAW AMS 2700. Medium Micro Bands are 8.125 inches (206.4) in length and designed for use with the Band-Master ATS® 601-101 hand banding tool or the 601-107 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately .88 inches (22.4).



Long Flat 601-064
Long Precoiled 601-065

Micro Bands are precision constructed of 300 Series SST passivate IAW AMS 2700. Long Micro Bands are 14.25 inches (362.0) in length and designed for use with the Band-Master ATS® 601-101 hand banding tool or the 601-107 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately 1.88 inches (47.8).





ArmorLite™ is an ultra-lightweight microfilament stainless steel EMI/RFI braided shielding. Available as tubular sleeving as well as direct factory overbraiding for point-to-point and multi-branch interconnect assemblies.

LIGHTWEIGHT

ARMORLITE™

Microfilament nickel-clad expandable stainless steel EMI/RFI braided shielding

Save weight and money every time you fly! All-Up-Weight (AUW) has met its match: ArmorLite™ microfilament stainless steel braid saves pounds compared to standard QQ-B-575/A-A-59569 EMI/RFI shielding. ArmorLite™ is an expandable, flexible, high-strength, conductive stainless steel microfilament braid material designed for use as EMI/RFI shielding in high-performance wire interconnect systems. The principal benefit of ArmorLite™ is its extreme light weight compared to conventional nickel/copper shielding. By way of comparison, 100 feet of 5/8 inch ArmorLite™ is more than four pounds lighter than standard 575 A-A-59569 shielding. Plus, ArmorLite™ offers superior temperature tolerance compared to other lightweight tubular braided shielding including microfilament composite technologies.

- **Ultra-lightweight EMI/RFI braided sleeving for high-temperature applications -80°C to +260°C**
- **Microfilament stainless steel: *70% lighter* than NiCu A-A-59569/QQB575**
- **Outstanding EMI/RFI shielding and conductivity**
- **Aerospace environment qualified**
- **Superior flexibility and "windowing" resistance: 90 to 95% optical coverage**
- **70,000 psi (min.) tensile strength**
- **Best performing metallic braid during lightning tests (IAW ANSI/EIA-364-75-1997 Waveform 5B)**

LIGHTWEIGHT, FLEXIBLE

ArmorLite™ Microfilament Braid for EMI/RFI Shielding Applications

SPACE GRADE
NASA
ESA, JAXA
SCREENED

DESCRIPTION	REQUIREMENT	PROCEDURE	REPORT
Altitude test 27,000 ft (5 PSIA nom.)	2.5% min.	RTCA DO-160F, Table 4-1, Table 4-2 Category C temp. spec	ARM-103
Operating Temperature	-80°C to +260°C	(85% Shielding effectiveness 1000 hours)	ARM-103
Braid Resistivity test, Pre and Post	Test pre/post–5 cycles–minimal disparity per spec.	EIA-364-32D IAW AS85049	ARM-110/1
Surface Transfer Impedance	Transfer Impedance (10.0 kHz ~ 1.0 GHz)	IEC 62153-4-3	GT-18-026
Shield Effectiveness test, Pre and Post	Screening Attenuation (0 ~ 4.00 GHz)	IEC 62153-4-4	GT-18-026
Tensile/ Pull Strength	220 lbs. (min.). No anomalies within 8% - 10% of pre test for variable sizes	Glenair ATP- 183. 0 lbs. to 90 lbs, to 150 lbs, to 220lbs @ speed of 0.25 inches/min	ARM-105
Specific Gravity Test	8.2 (max) per ISO-1183	ASTM A580 (ref 316L Stainless Steel)	ARM-109
Lightning Current Test	Glenair Qual. Test Plan 191/ DC resistance/ voltage criteria per DO-160F Level for 3 sizes up to 30Ka.	ANSI/EIA-364-75-1977 Wave Form 5B SAE/ARP5416 Section 6.3 Waveform 1, 3 (1, 10MHz) and 5A	ARM-110 ARM-112
Vertical Flammability	Self extinguishing ≤ 2 sec. Burn length 0.1 inch. max. Dripping 0.0 seconds.	14 CFR part 25.853 (a) AMdT25-116 Appendix F Part I (a) (1) (ii)	ARM-101
Mass Loss and Collected Volatile Condensable Materials	Total Mass Loss (TML) ≤1.0% Collected Volatile Condensable Matl.(CVCM) ≤.1%	ASTM E-595	ARM-102
Salt Spray Test	DC Resistance IAW AS85049 .5 milliohm. No evidence of base metal on braid	ASTM B117-09 Sodium Chloride 5% 500 Hrs	ARM-100
Vibration Resistance	EAI Test Report 33247. DO160 section 8 Cat. R Vib. Curves E1	DO-160F RTCA/DO-160F, Section 9, Fig. 8-4. Curve E1. - 3 sizes – 3 hours on each axis.	ARM-111
Thermal Shock Cycling test and Resistivity	No adverse effects in visual inspection or resistance after 50 cycles	EIA-364-32D, Table 3 Test condition V -65°C to +175°C	ARM-113
Abrasion and Plating test	DC Resistance IAW AS 85049. Glenair internal QTR-003	ATP 180 20 continuous @ 6 cycles/min. over 3 arms with .030 radiused edges	ARM-107
Fluid Immersion Test	Material compatibility – see table below	Customer/AS4373D method 601 Mod	ARM-106
Flex Test	2 Cycles: starting 0° over vertical ctr. line across to 180° cycle. Total cycles of 25633	Glenair ATP 179	ARM-112

Test Fluid	Test Temp °C	Test Temp °F	Immersion Time(h)	Requirement	Procedure
MIL-L-23699, Lubricating Oil ,Aircraft Turbine Engine, Synthetic Base	48-50	118-122	20	No fraying, DCresistance within limits (AS85049 paragraph 4.6.3)	SAE AS1241 Table 15/Mil-Std 810F Method 504 (modified), for all Substances. Additional conformance to Test Criteria AS4373D method 601 Mod
MIL-H-5606 (Inactive for New Design), Hydraulic Fluid, Petroleum Base, Aircraft Missile, and Ordnance	48-50	118-122	20		
TTI-I-735, Solvent, Isopropyl Alcohol	20-25	68-77	168		
ASTM D 1153, Methyl Isobutyl Ketone (For use in organic coatings)	20-25	68-77	168		
MIL-DTL-5624 , Turbine Fuel, Aviation, Grade JP-4 either or MIL-T-83133, JP-8	20-25	68-77	168		
SAE AMS1424, Anti-Icing and Deicing-Defrosting Fluid, undiluted	48-50	118-122	20		
SAE AMS1424, Anti-Icing and Deicing-Defrosting Fluid, diluted 60/40 (fluid/water) ratio. Supersedes Coolanol 25 Item Q	48-50	118-122	20		
MIL-C-43616, Cleaning Compound, Aircraft Surface	48-50	118-122	20		
SAE AS 1241 , Fire Resistant Hydraulic Fluid for Aircraft	48-50	118-122	20		
MIL-L-7808, Lubricating Oil, Aircraft Turbine Engine, Synthetic Base	118-121	244-250	30		
MIL-C-87937, Cleaning Compound, Aircraft Surface, Alkaline, undiluted	63-68	145-154	20		
MIL-C-87937, Cleaning Compound, Aircraft Surface, Alkaline Waterbase, diluted 25175 (fluid/water) ratio	63-68	145-154	20		
TT-S-735, Standard Test Fluids; Hydrocarbon, Type I	20-25	68-77	168		
TT-S-735, Standard Test Fluids; Hydrocarbon, Type II	20-25	68-77	168		
TT-S-735, Standard Test Fluids; Hydrocarbon, Type III	20-25	68-77	168		
TT-S-735, Standard Test Fluids; Hydrocarbon, Type VII	20-25	68-77	168		
MIL-PRF-87252, Coolant Fluid, Hydrolytically Stable, Dielectric	20-25	68-77	168		

LIGHTWEIGHT, FLEXIBLE

ArmorLite™ Microfilament Braid for EMI/RFI Shielding Applications

Aircraft utilization study

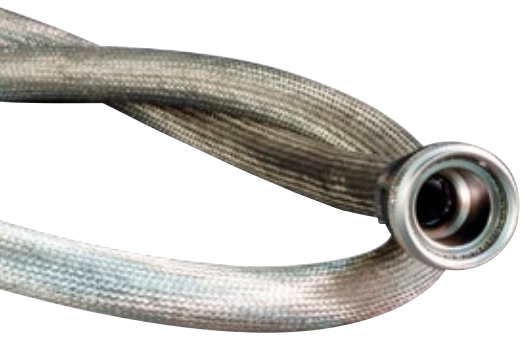
ARMORLITE™ AIRCRAFT UTILIZATION ANALYSIS

Comparison of ArmorLite® lightweight microfilament braid to standard A-A-59569 Ni/Cu braid

ArmorLite™ lightweight EMI/RFI braided shielding is ideally suited for weight reduction efforts in Electrical Wire Interconnect Systems in aerospace applications

Length and Weight of NiCu Braid in Typical Commercial Aircraft			
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	**73.3**

Weight Savings Using ArmorLite™ (Equivalent Lengths)				
Diameter (in)	Weight (Lb/ft)	Length (in)	Length in feet	weight (Lb)
0 - 0.25	.00507	12564.8	1047.07	5.309
0.25 - 0.5	.0097	5259.3	438.28	4.251
0.5 - 0.75	.0178	1212.6	101.05	1.737
0.75 - 1.0	.0256	1437.4	119.78	3.063
1.0 - 1.5	.0368	467	38.92	1.434
		Total weight		**15.794**



Using ArmorLite™ in place of standard nickel-copper braid saves 54.6 pounds per system—up to 78% weight savings!

Aircraft Zone Typical Braid Utilization (length in inches)								
L Wing	R Wing	Fwd Belly	Aft Belly	HYD Bay	Aft Barrel	Tail	V/H Stab	Totals
1852.2	1852.2	0	2811.4	168.2	2015.2	2480.6	1385	12564.8
434.8	434.8	511.6	1034.6	257.4	506.2	958.2	1121.7	5259.3
0	0	260.9	223	0	184.2	392.4	152.1	1212.6
0	0	77.2	0	0	1198	162.2	0	1437.4
0	0	0	0	0	446	21	0	467

ArmorLite™ Microfilament Braid

103-051 100% ArmorLite
EMI/RFI microfilament stainless steel braided shielding

SPACE GRADE
NASA
ESA, JAXA
SCREENED

103-051 ARMORLITE™ LIGHTWEIGHT EMI/RFI MICROFILAMENT STAINLESS STEEL BRAIDED SHIELDING

How To Order				
Sample Part Number	**103**	**-051**	**-024**	**S**
Product Code	Lightweight Braid Series			
ArmorLite™	**-051** = 100% ArmorLite™ Nickel-Clad Stainless Steel			
Braid Diameter Dash Number	See Table			
Silver Clad Option	**S** = silver clad **Omit** for standard nickel clad			

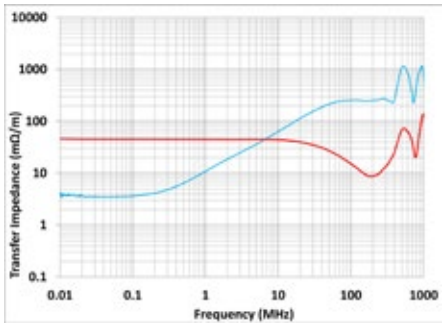
ArmorLite™ -051 vs. nickel-plated copper braid			
Braid Dia.	ArmorLite™ 103-051 grams per foot (approx.)	Nickel-Copper 100-003 grams per foot (approx.)	% Weight Savings/ Foot
.031	.5	.9	44%
.062	1.2	1.9	37%
.125	1.6	4.8	67%
.250	2.3	16.1	86%
.375	3.0	18.5	84%
.500	4.6	22.3	79%
.625	5.0	27.7	82%
.750	6.0	34.3	83%
1.000	11.9	35.0	66%
1.250	14.5	44.0	67%
1.500	17.9	51.0	65%
2.000	23.6	60.0	61%

Dash Number - Diameter, Wire Bundle and Weight					
Dash No.	Nominal I.D. (ref.)	Wire Bundle Range (ref.)	Approx. Grams/Foot Nickel Clad	Approx. Grams/Foot Silver Clad	Approx. Milliohms/ Meter
-001	.031 (.8)	.016 (.4) .047 (1.2)	.52	.53	355
-002	.062 (1.6)	.040 (1.0) .075 (1.9)	1.19	1.23	129
-004	.125 (3.2)	.093 (2.4) .140 (3.5)	1.55	1.60	109
-008	.250 (6.4)	.125 (3.2) .312 (7.9)	2.28	2.35	65
-012	.375 (9.5)	.250 (6.4) .406 (10.3)	3.00	3.10	49
-016	.500 (12.7)	.375 (9.5) .560 (14.2)	4.56	4.70	33
-020	.625 (15.9)	.375 (9.5) .700 (17.8)	4.97	5.13	32
-024	.750 (19.1)	.500 (12.7) .800 (20.3)	6.00	6.19	25
-032	1.000 (25.4)	.780 (19.8) 1.100 (27.9)	11.9	12.3	13
-040	1.250 (31.8)	.938 (23.8) 1.312 (33.3)	14.5	15.0	11.3
-048	1.500 (38.1)	1.187 (30.1) 1.590 (40.4)	17.9	18.5	9
-064	2.000 (50.8)	1.312 (33.3) 2.090 (53.1)	23.6	24.4	5

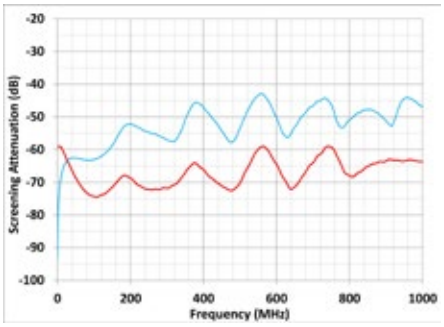
ARMORLITE™

- **70+% weight savings over NiCu braid**
- **Outstanding EMI/RFI shielding and conductivity**
- **Broader temperature range: -80°C to +260°C**
- **Highly corrosion resistant**
- **Superior flexibility and "windowing" resistance**

Transfer Impedance Comparison (Z_T) Size 16



Screening Attenuation Comparison (A_S) Size 16



103-051-016 ArmorLite™ 100-003A500 NiCu Tested per IEC 62153-4-3Ed2

NOTES

1. Material - ArmorLite™ nickel-clad 316L stainless steel. ArmorLite™ is a trademark of Glenair, Inc.
2. Specify length on purchase order. No minimums!

ArmorLite™ Microfilament Braid

103-052 75% ArmorLite, 25% Nickel/Copper EMI/RFI microfilament stainless steel braided shielding

103-052 ARMORLITE™ LIGHTWEIGHT EMI/RFI MICROFILAMENT STAINLESS STEEL / NICKEL COPPER BRAIDED SHIELDING

How To Order				
Sample Part Number	**103**	**-052**	**-024**	**S**
Product Code	Lightweight Braid Series			
ArmorLite™	**-052** = 75% ArmorLite™ / 25% Nickel-Copper			
Braid Diameter Dash Number	See Table			
Silver Clad Option	**S** = 75% ArmorLite / 25% silver-plated copper **Omit** for standard nickel clad			

ArmorLite™ -052 vs. nickel-plated copper braid

Braid Dia.	ArmorLite™ 103-052 grams per foot (approx.)	Nickel-Copper 100-003 grams per foot (approx.)	% Weight Savings/ Foot
.062	1.6	1.9	16%
.125	1.8	4.8	63%
.250	2.8	16.1	83%
.375	3.5	18.5	81%
.500	5.4	22.3	76%
.625	5.7	27.7	79%
.750	7.5	34.3	78%
1.000	13.1	35.0	63%
1.250	15.8	44.0	65%
1.500	19.7	51.0	61%
2.000	24.4	60.0	59%

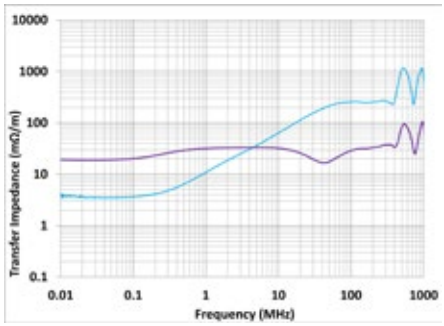
Dash Number - Diameter, Wire Bundle and Weight

Dash No.	Nominal I.D. (ref.)	Wire Bundle Range (ref.)	Approx. Grams/Foot
-002	.062 (1.6)	.040 (1.0) – .075 (1.9)	1.6
-004	.125 (3.2)	.093 (2.4) – .140 (3.5)	1.8
-008	.250 (6.4)	.125 (3.2) – .312 (7.9)	2.8
-012	.375 (9.5)	.250 (6.4) – .406 (10.3)	3.5
-016	.500 (12.7)	.375 (9.5) – .560 (14.2)	5.4
-020	.625 (15.9)	.375 (9.5) – .700 (17.8)	5.7
-024	.750 (19.1)	.500 (12.7) – .800 (20.3)	7.5
-032	1.000 (25.4)	.780 (19.8) – 1.100 (27.9)	13.1
-040	1.250 (31.8)	.938 (23.8) – 1.312 (33.3)	15.8
-048	1.500 (38.1)	1.187 (30.1) – 1.590 (40.4)	19.7
-064	2.000 (50.8)	1.312 (33.3) – 2.090 (53.1)	24.4

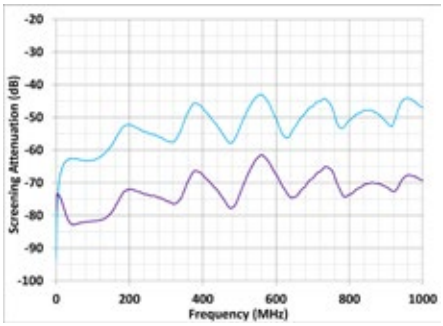
ARMORLITE™

- **70+% weight savings over NiCu braid**
- **Outstanding EMI/RFI shielding and conductivity**
- **Broader temperature range: -80°C to +200°C**
- **Highly corrosion resistant**
- **Superior flexibility and "windowing" resistance**

Transfer Impedance Comparison (Z_T) Size 16



Screening Attenuation Comparison (A_S) Size 16



103-052-016 75% ArmorLite / 25% NiCu — 100-003A500 NiCu Tested per IEC 62153-4-3Ed2

NOTES

1. Material - 75% ArmorLite™ nickel-clad 316L stainless steel / 25% nickel plated copper.
   S Option - 75% ArmorLite™ nickel-clad 316L stainless steel / 25% silver plated copper.
   ArmorLite™ is a trademark of Glenair, Inc.
2. Specify length on purchase order. No minimums!

ArmorLite™ Microfilament Braid

103-071 50% ArmorLite, 50% Nickel/Copper EMI/RFI microfilament stainless steel braided shielding

SPACE GRADE
NASA
ESA, JAXA
SCREENED

103-071 ARMORLITE™ LIGHTWEIGHT EMI/RFI MICROFILAMENT STAINLESS STEEL / NICKEL COPPER BRAIDED SHIELDING

How To Order				
Sample Part Number	**103**	**-071**	**-024**	**S**
Product Code	Lightweight Braid Series			
ArmorLite™	**-071** = 50% ArmorLite™ / 50% Nickel-Copper			
Braid Diameter Dash Number	See Table			
Silver Clad Option	**S** = 50% ArmorLite / 50% silver-plated copper **Omit** for standard nickel clad			

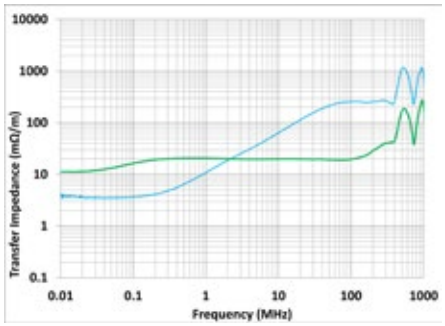
ArmorLite™ -071 vs. nickel-plated copper braid			
Braid Dia.	ArmorLite™ 103-071 grams per foot (approx.)	Nickel-Copper 100-003 grams per foot (approx.)	% Weight Savings/ Foot
.062	2.1	1.9	16%
.109	2.4	3.7	35%
.125	2.5	4.8	63%
.250	3.6	16.1	83%
.375	5.1	18.5	81%
.500	7.5	22.3	76%
.625	7.7	27.7	79%
.750	10.0	34.3	78%
1.000	15.5	35.0	63%
1.250	16.8	44.0	65%
1.500	27.9	51.0	61%
2.000	30.2	60.0	59%

Dash Number - Diameter, Wire Bundle and Weight			
Dash No.	Nominal I.D. (ref.)	Wire Bundle Range (ref.)	Approx. Grams/Foot
-001	.031 (0.8)	.025 (0.6) – .062 (1.6)	1.8
-002	.062 (1.6)	.040 (1.0) – .075 (1.9)	2.1
-003	.109 (2.8)	.075 (1.9) – .125 (3.2)	2.4
-004	.125 (3.2)	.093 (2.4) – .140 (3.5)	2.5
-008	.250 (6.4)	.125 (3.2) – .312 (7.9)	3.6
-012	.375 (9.5)	.250 (6.4) – .406 (10.3)	5.1
-016	.500 (12.7)	.375 (9.5) – .560 (14.2)	7.5
-020	.625 (15.9)	.375 (9.5) – .700 (17.8)	7.7
-024	.750 (19.1)	.500 (12.7) – .800 (20.3)	10.0
-032	1.000 (25.4)	.780 (19.8) – 1.100 (27.9)	15.5
-040	1.250 (31.8)	.938 (23.8) – 1.312 (33.3)	16.8
-048	1.500 (38.1)	1.187 (30.1) – 1.590 (40.4)	27.9
-064	2.000 (50.8)	1.312 (33.3) – 2.090 (53.1)	30.2

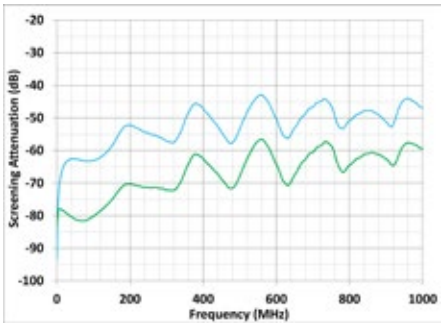
ARMORLITE™

- **70+% weight savings over NiCu braid**
- **Outstanding EMI/RFI shielding and conductivity**
- **Broad temperature range: -80°C to +200°C**
- **Highly corrosion resistant**
- **Superior flexibility and "windowing" resistance**

Transfer Impedance Comparison (Z_T) Size 16



Screening Attenuation Comparison (A_S) Size 16



103-071-016 50% ArmorLite / 50% NiCu — 100-003A500 NiCu — Tested per IEC 62153-4-3Ed2

NOTES

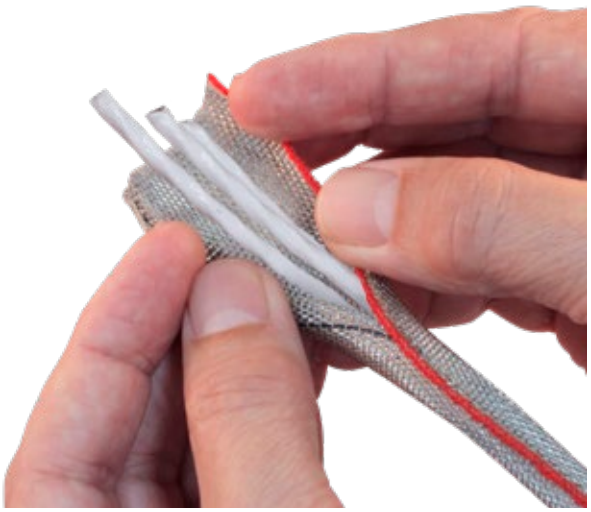
1. Material - 50% ArmorLite™ nickel-clad 316L stainless steel / 50% nickel plated copper. S Option - 50% ArmorLite™ nickel-clad 316L stainless steel / 50% silver plated copper. ArmorLite™ is a trademark of Glenair, Inc.
2. Specify length on purchase order. No minimums!

WITH ARMORLITE™ TECHNOLOGY

MasterWrap™ flexible, lightweight wraparound EMI/RFI shielding and abrasion protection

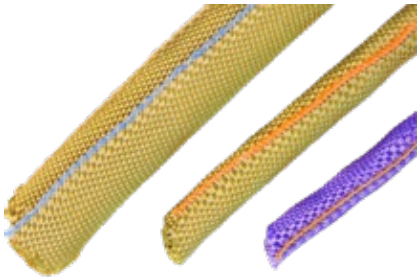
for spot EMI/RFI shielding coverage and repair of wire harnesses

MasterWrap™



- **Up to 70% weight reduction compared to standard metallic EMI shielding**
- **Replaces harder-to-install tubular EMI/RFI sleeving**
- **Fast and easy side-entry installation and removal**
- **Reduces windowing and coverage gaps**
- **Superior flexibility, durability and repairability**
- **Temperature tolerant from -65°C to 200°C**
- **High-frequency EMI shielding performance comparable to standard metallic and lightweight tubular braid**
- **Outstanding abrasion and mechanical protection**
- **Halogen-free and RoHS compliant**
- **500 hour salt spray corrosion resistance**
- **50,000 cycle 90°–120° bend flex tested**
- **Outstanding caustic chemical and corrosive fluid resistance**

Tubular braided sleeving meets the broad range of EMC shielding and mechanical protection requirements of aircraft harness assemblies. But the need to apply conductive shielding materials over installed aircraft wire and cable bundles requires new technology. Legacy self-wrapping cable braid has long been available for EMI/RFI applications and abrasion protection, albeit with poor performance due to its heavy weight, inflexibility, and "windowing," which results in poor shielding performance. MasterWrap™, a lightweight, easy-to-install, side-entry, self-wrapping shielding solution —incorporating Glenair microfilament ArmorLite™ and composite thermoplastic PEEK fibers—solves these problems and more. MasterWrap™ is ideally suited for both long-run wire harness protection as well as spot coverage and maintenance of EMC cable applications—all with outstanding weight reduction and ease-of-assembly. MasterWrap™ is qualified for use at major aircraft manufacturers for both long cable runs and spot coverage and repairs.



MATERIAL CONSTRUCTION AND HANDLING PERFORMANCE

Flexible material eliminates kinking and windowing · Spring members ensure shielding stays tight to wire bundle

Ultra-lightweight microfilament stainless steel core, plated with conductive nickel for outstanding shielding performance

Interwoven with high-temperature PEEK composite thermoplastic spring members that ensure up to 95% optical coverage

- Material design provides uniform surface with limited interference to structures and clamps
- Provides optimum surface coverage and adherence to wire bundle without buckling during both straight and angled routing
- MasterWrap delivers increased abrasion protection with additional axial edge strength members compared to standard tubular braided shielding
- Reduces kinking and windowing compared to full metal braid solutions for excellent shielding performance

WITH ARMORLITE™ TECHNOLOGY

MasterWrap™ flexible, lightweight wraparound EMI/RFI shielding and abrasion protection

for spot EMI/RFI shielding coverage and repair of wire harnesses

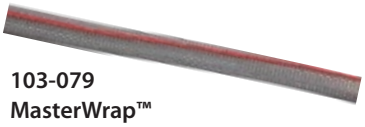
SPACE GRADE NASA ESA, JAXA SCREENED

HERE'S WHAT YOU NEED TO KNOW ABOUT WEIGHT

Weight of standard metallic tubular braided cable shielding		
EMI Braided Shielding Type (measured samples all 1/2" diameter)	Weight g/ft	Weight g/m
Glenair nickel-clad copper braid	21.6	70.9
Raychem RAY-103-12.5 nickel-clad copper braid	21.9	72.0
Weight of lightweight tubular (LWB) braided cable shielding		
AmberStrand® 100%	3.7	12.1
AmberStrand® 75% / NiCu 25%	4.9	16.1
ArmorLite™ 100%	4.4	14.4
ArmorLite™ 75% / NiCu 25%	5.4	17.7
Raychem INSTALITE	13.4	44.0
Weight of side-entry self-wrapping braided cable shielding		
MasterWrap™	6.2	20.3
Federal Mogul ROUNDIT® EMI FMJ	18.0	59
Federal Mogul ROUNDIT® EMI C27 XWS	23.5	77

100-003
tubular metal braid ASTM B355 Class 4 OFHC nickel-plated copper

103-051
ArmorLite™ microfilament nickel-clad stainless steel



103-079
MasterWrap™ side-entry shield braid

Mechanical and Environmental Performance Summary		
Vibration	No evidence of wear or visible defect	DO-160G Cat S and H
Abrasion	No evidence of wear, visible defect or electrical degradation	EN-3475-511:2002
High Temperature Exposure	168 hours at 200°C; no visual or electrical degradation	EN 6059-302 part 302
Rapid Change of Temperature	10 hour hot and cold cycling; no evidence of wear or visible defect	EN 6059-308 part 308
Vertical Flammability	Pass	14 CFR part 25.853
Fluid Immersion Testing	No visual or electrical degradation	DO-160G
Bending Properties	25000 cycles; no breakage, no plating delamination	EN 6059-402
Salt Fog 500 Hours	No evidence of base metal on braid	ASTM B117-03 Sodium Chloride 5%

MasterWrap is compatible with most aerospace industry fluids. Consult factory for specifics.

WHAT YOU NEED TO KNOW ABOUT EMI/RFI SHIELDING PERFORMANCE

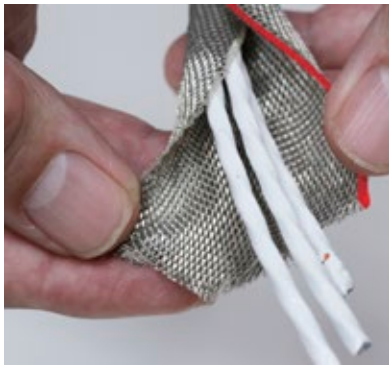
	NiCu	ArmorLite™	Amberstrand®	MasterWrap™
TRANSFER IMPEDANCE (Per IEC 62153-4) (Max values for 1/2 inch diameter shields)				
FREQUENCY				
10 KHz	5 mΩ/m	50 mΩ/m	60 mΩ/m	40 mΩ/m
100 KHz	5 mΩ/m	50 mΩ/m	60 mΩ/m	40 mΩ/m
1 MHz	12 mΩ/m	50 mΩ/m	60 mΩ/m	40 mΩ/m
10 MHz	80 mΩ/m	50 mΩ/m	80 mΩ/m	40 mΩ/m
100 MHz	130 mΩ/m	30 mΩ/m	110 mΩ/m	80 mΩ/m
SHIELDING ATTENUATION (Per IEC 62153-4) (Min values for 1/2 inch diameter shields)				
FREQUENCY				
1 GHz	38 dB	55 dB	48 dB	40 dB
3 GHz	40 dB	60 dB	55 dB	35 dB
5 GHz	44 dB	60 dB	60 dB	45 dB
8 GHz	40 dB	50 dB	60 dB	40 dB
WEIGHT	**70.9 g/m**	**14.4 g/m**	**12.1 g/m**	**20.3 g/m**

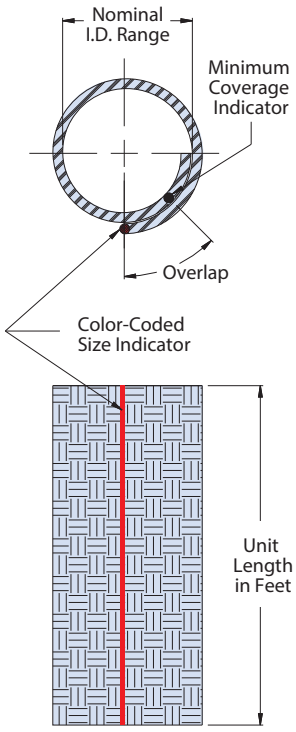
The table at left is a useful summary of MasterWrap™ shielding performance compared to NiCu and lightweight braid. Transfer impedance and shielding attenuation data is supplied for 1/2" diameter test samples. At high frequencies, both LWB and MasterWrap™ provide comparable and even superior performance to nickel-copper due to reduced windowing and superior optical coverage with significant reduction in weight. Further improvements in high-frequency shielding attenuation can be achieved using conductive tape wraps and/or via hybrid blends of LWB and NiCu.

MasterWrap™ ArmorLite: flexible, lightweight wraparound EMI/RFI shielding

for long runs and spot coverage

MASTERWRAP ARMORLITE: DIMENSIONAL INFORMATION • HOW TO ORDER





How To Order		
Sample Part Number	**103-079**	**-024**
Basic No.	MasterWrap™ ArmorLite material	
Dash No.	See Table I	

Table I

Dash No	Nominal I.D. (Ref.)		Ref. Wire Bundle Range Nominal		Approx. Weight Grams/Ft.	Approx. Milliohms / Meter	Min. Pull Strength (lbs)	Size Indicator color code	Quantity feet/spool
	In.	mm	In.	mm					
004	.125	3.2	.093 .170	2.4 4.3	2.1	99.8	39	Black	50–500
008	.250	6.4	.170 .300	4.3 7.6	4.0	52.2	75	Brown	50–400
012	.375	9.5	.300 .406	7.6 10.3	5.0	41.8	94	Red	50–300
016	.500	12.7	.406 .520	10.3 13.2	6.2	34.0	116	Orange	50–250
020	.625	15.9	.520 .675	13.2 17.2	8.7	24.2	158	Yellow	50–200
024	.750	19.1	.675 .825	17.2 21.0	10.6	20.0	193	Green	50–100
032	1.000	25.4	.825 1.100	21.0 27.9	12.9	16.4	237	Blue	50–100
040	1.250	31.8	.938 1.312	23.8 38.3	17.4	TBD	TBD	Violet	50–100
048	1.500	38.1	1.187 1.575	30.1 40.4	21.2	TBD	TBD	Gray	50–100
064	2.000	50.8	1.575 2.090	33.0 53.1	25.8	TBD	TBD	White	50–100

NOTES

Product ordered in 1 foot increments, packaged in boxed spools. See Table I. Lengths of 1–49 feet will be packaged in individual polybags.

Materials:

Woven mesh - ArmorLite microfilament nickel-clad 316L stainless steel; Monofilament - PEEK; Overlap tracer - high temperature DuPont™ Nomex®thread

DuPont™ and Nomex® are trademarks or registered trademarks of E.I. duPont de Nemours and Company.

AVAILABLE WIRE LOOM TOOL FOR EASY ASSEMBLY FOR ALL MASTERWRAP™ PRODUCTS

Select size based on max bundle diameter

Part Number	Max Bundle Dia.
600-180-08	3/8 in (8mm)
600-180-15	5/8 in (15mm)
600-180-20	3/4 in (20mm)
600-180-25	1 in (25 mm)
600-180-32	1 1/4 in (32mm)

Easy to use: simply gather wire bundle into the tool…

…Insert tool and wires into MasterWrap and run through

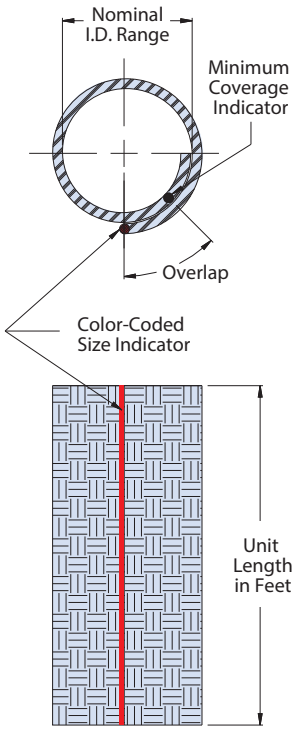
NEW MASTERWRAP™ WITH NOMEX®

103-095 (Nomex®) flexible, lightweight wraparound abrasion / thermal protection

for spot mechanical coverage and repair of wire harnesses

SPACE GRADE NASA ESA, JAXA SCREENED

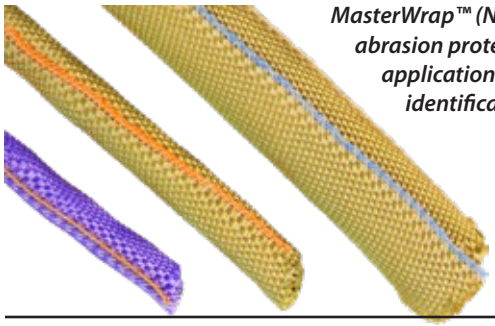
MASTERWRAP (NOMEX®): DIMENSIONAL INFORMATION • HOW TO ORDER



How To Order			
Sample Part Number	**103-095**	**-024**	**GY**
Basic No.	MasterWrap™ (Nomex®) material		
Dash No.	See Table I		
Color option	**W** = White **R** = Red **GN** = Green GY = Gray **TN** = Desert Tan **OR** = Orange Omit = for standard Black		

Table I

Dash No	Nominal I.D. (Ref.) In.	Nominal I.D. (Ref.) mm	Ref. Wire Bundle Range Nominal In.	Ref. Wire Bundle Range Nominal mm	Approx. Weight Grams/Ft.	Min. Pull Strength (lbs)	Size Indicator color code	Quantity feet/spool
004	.125	3.2	.093 .170	2.4 4.3	1.8	39	Black	50–500
008	.250	6.4	.170 .300	4.3 7.6	2.3	75	Brown	50–400
012	.375	9.5	.300 .406	7.6 10.3	3.2	94	Red	50–300
016	.500	12.7	.406 .520	10.3 13.2	3.7	116	Orange	50–250
020	.625	15.9	.520 .675	13.2 17.2	5.0	158	Yellow	50–200
024	.750	19.1	.675 .825	17.2 21.0	6.0	193	Green	50–100
032	1.000	25.4	.825 1.100	21.0 27.9	7.3	237	Blue	50–100
040	1.250	31.8	.938 1.312	23.8 38.3	10.0	TBD	Violet	50–75
048	1.500	38.1	1.187 1.590	30.1 40.4	11.0	TBD	Gray	50
064	2.000	50.8	1.812 2.090	33.0 53.1	12.2	TBD	White	50



MasterWrap™ (Nomex®) is the ideal solution for mechanical abrasion protection of wire bundle harnessing in aircraft applications. Available color selections allow for easy identification and labeling of wire circuitry.

NOTES

Product ordered in 1 foot increments, packaged in boxed spools. See Table I. Lengths of 1–49 feet will be packaged in individual polybags.

Materials:

Woven mesh - high temperature DuPont™ Nomex®; Monofilament - PEEK; Overlap tracer - high temperature DuPont™ Nomex®thread

DuPont™ and Nomex® are trademarks or registered trademarks of E.I. duPont de Nemours and Company.

ArmorLite™ mesh tape: flexible, lightweight woven solution for spot EMI coverage and repairs

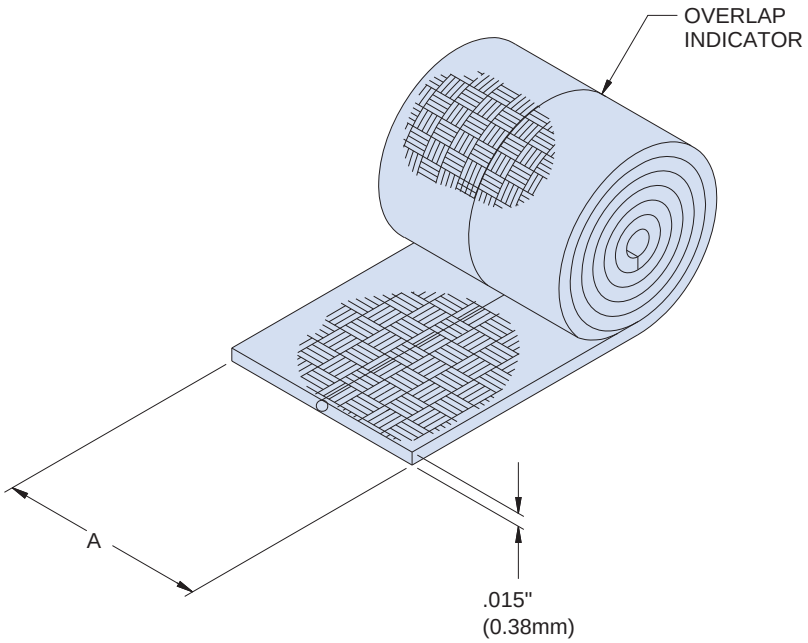
103-058 ArmorLite™ mesh tape (non-adhesive)

103-058 ARMORLITE LIGHTWEIGHT SHIELDING TAPE FOR 360° EMI SPOT COVERAGE AND REPAIR

How To Order			
Sample Part Number		**103-058**	**-1**
Basic No.	ArmorLite™ tape		
Dash No.	**1** = .50" wide tape **2** = 1.00" wide tape **3** = 1.50" wide tape (see Table I for specifications)		

Table I

Dash No.	Nominal Width 'A' Dim.	Approx. Weight (grams/ft.)	Milliohms per meter ref.	Minimum pull strength (lbs) ref.
-1	.50" (12.7mm)	2.1	99.8	39
-2	1.00" (25.4mm)	4.0	52.2	75
-3	1.50" (38.1mm)	6.1	TBD	120



NOTES

1. Order in 1 foot increments. Standard packaging on spools in 50 ft. lengths. Orders of 1–49 ft. will be packaged in individual polybags.

Material:

Woven mesh - ArmorLite™ microfilament (nickel clad 316L stainless steel); Overlap tracer - high temperature DuPont™ Nomex® thread; Monofilament - PEEK

DuPont™ and Nomex® are trademarks or registered trademarks of E.I. duPont de Nemours and Company.

Mesh tape, Nomex®: flexible, lightweight woven solution for spot mechanical/abrasion protection

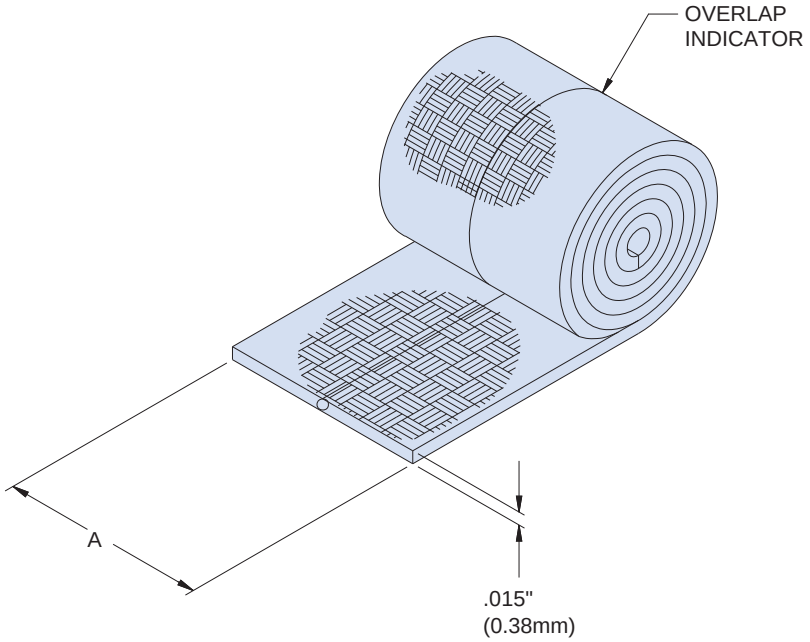
103-102 Mesh tape, Nomex® (non-adhesive)

SPACE GRADE NASA ESA, JAXA SCREENED

103-102 LIGHTWEIGHT TAPE, NOMEX® FOR MECHANICAL/ABRASION SPOT COVERAGE AND REPAIR

How To Order			
Sample Part Number	**103-102**	**-1**	**GY**
Basic No.	Mesh tape, Nomex®		
Dash No.	**1** = .50" wide tape **2** = 1.00" wide tape **3** = 1.50" wide tape (see Table I for specifications)		
Color option	**W** = White **R** = Red **GN** = Green **GY** = Gray **TN** = Desert Tan **OR** = Orange **Omit** = for standard Black		

Table I			
Dash No.	Nominal Width 'A' Dim.	Approx. Weight (grams/ft.)	Minimum pull strength (lbs) ref.
-1	.50" (12.7mm)	1.5	TBD
-2	1.00" (25.4mm)	3.0	TBD
-3	1.50" (38.1mm)	4.5	TBD



NOTES

1. Order in 1 foot increments. Standard packaging on spools in 50 ft. lengths. Orders of 1–49 ft. will be packaged in individual polybags.

Material:

Woven mesh and overlap tracer - high temperature DuPont™ Nomex® thread; Monofilament - PEEK

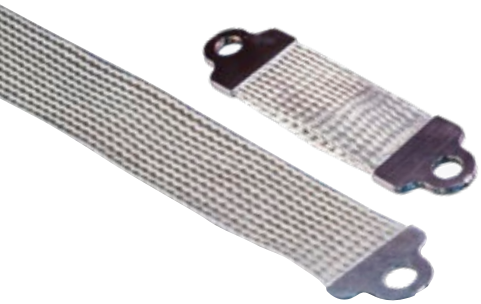
DuPont™ and Nomex® are trademarks or registered trademarks of E.I. duPont de Nemours and Company.

WEIGHT-SAVING, LOW-PROFILE

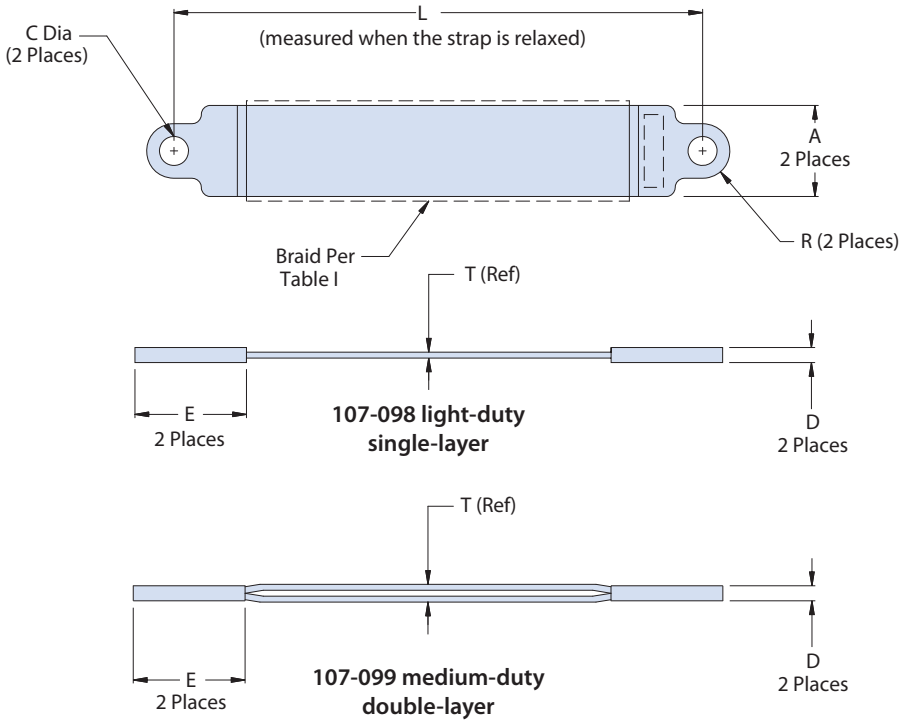
ArmorLite™ ESD Grounding Straps

Series 107 • Single and dual layer • soldered lugs

LIGHTWEIGHT ARMORLITE™ MICROFILAMENT GROUND STRAPS, SOLDERED LUGS



How To Order				
Sample Part Number	**107-098**	**-A**	**-12**	**-6**
Grounding Strap	**-098** = Single layer light duty ArmorLite **-099** = Dual layer medium duty ArmorLite			
Material	**A** = ArmorLite microfilament stainless steel braid			
Width Code	(See Table II)			
Length	Dimension (L) in one inch increment			



- **For grounding airframe sections, dissipating static build-up in composite structures, dissipating lightning strike energy, and grounding individual moving parts**
- **70+% weight savings over standard NiCu braid**
- **Approved for use by major airframe and equipment manufacturers**
- **Lightweight, durable soldered lugs**

Table II: Mechanical/Electrical Parameters for ArmorLite Material

Width Code	A ± .03	C	R	D	E	T	Nom. Resistance mOhm/m* (AWG Equiv.)	Lug Junction Resistance mOhm	Weight gr/m*	Inductance nH/m (Ref. Only)	Test Current Amps**	Tensile Strength Lbf
12	.290 (7.37)	.150 (3.81)	.145 (3.68)	.042 (1.06)	.480 (12.19)	.016 (.41)	48 (22)	0.129	9.0	1277	37	130
20	.480 (12.19)	.200 (5.08)	.240 (6.10)	.042 (1.06)	.690 (17.53)	.016 (.41)	26 (19)	0.111	13.4	1170	52	216
24	.590 (14.99)	.260 (6.60)	.295 (7.49)	.042 (1.06)	.790 (20.06)	.016 (.41)	23 (18)	0.097	17.9	1116	62	219
32	.820 (2.83)	.390 (9.91)	.375 (9.53)	.052 (1.32)	.950 (24.13)	.021 (.53)	13 (16)	0.089	35.8	1047	127	483
40	.870 (22.10)	.390 (9.91)	.375 (9.53)	.052 (1.32)	.950 (24.13)	.021 (.53)	11 (15)	0.061	40.3	1034	141	524
48	1.080 (27.43)	.390 (9.91)	.375 (9.53)	.052 (1.32)	.950 (24.13)	.021 (.53)	8 (14)	0.054	53.8	983	162	590
64	1.330 (33.78)	.390 (9.91)	.375 (9.53)	.052 (1.32)	.950 (24.13)	.021 (.53)	6 (12)	0.047	71.7	936	208	723
for 107-099 double-layer straps												
48	1.080 (27.43)	.390 (9.91)	.375 (9.53)	.080 (2.03)	1.15 (29.21)	.042 (1.06)	4 (11)	0.054	107.6	976	500	590
64	1.330 (33.78)	.390 (9.91)	.375 (9.53)	.080 (2.03)	1.15 (29.21)	.042 (1.06)	3 (10)	0.047	143.4	930	650	723

* Braid only, figures exclude termination lugs. **Test current is defined as the current required to reach 200° C at ambient temperature

WEIGHT-SAVING, LOW-PROFILE

ArmorLite™ ESD Grounding Straps

107-080 • Single and dual layer • configurable heavy-duty solder-free crimp lugs

SPACE GRADE NASA ESA, JAXA SCREENED

LIGHTWEIGHT ARMORLITE™ MICROFILAMENT GROUND STRAPS, SOLDER-FREE CRIMP LUGS

- **For grounding airframe sections, dissipating static build-up in composite structures, and lightning strike energy**
- **70+% weight savings over standard NiCu braid**
- **Approved for use by major airframe and equipment manufacturers**

How To Order					
Sample Part Number	**107-080**	**S**	**12**	**A**	**-6**
Grounding Strap	**-080** = ArmorLite ground strap with crimp lugs				
Layer Code	**S** = Single-layer braid **D** = Double-layer braid				
Width Code	See Table I				
Lug Hole Code	See Table II				
Length	Dimension (L) in one inch increment				

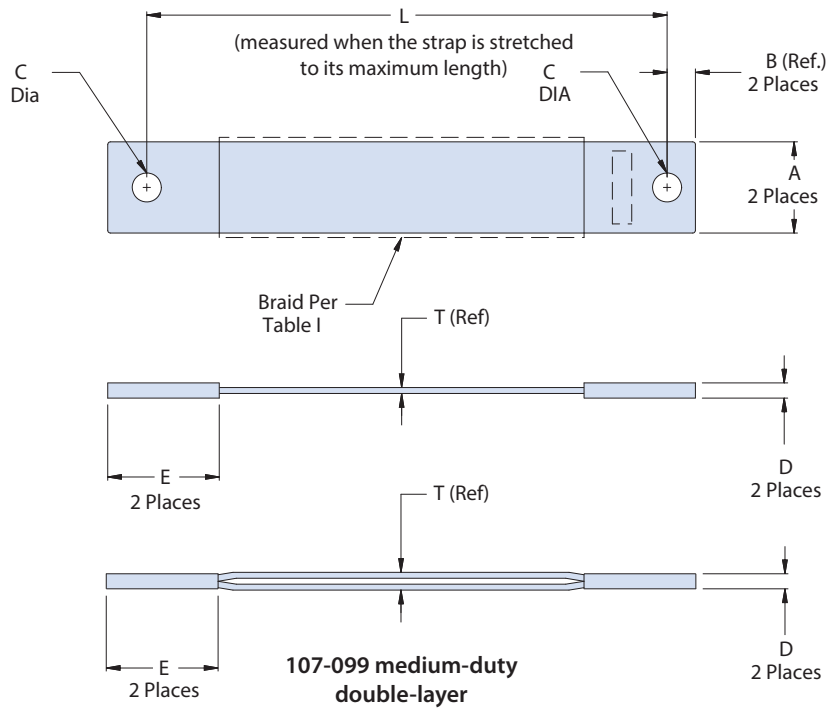


Table III: Lug Hole Size Codes

Lug 1 & 2 Hole Size Code	C Dia.	Stud Size (Ref.)
A	.120 / .128 (3.0 / 3.3)	#3, #4
B	.147 / .152 (3.7 / 3.9)	#5, #6
C	.172 / .180 (4.4 / 4.6)	#8
D	.199 / .204 (5.1 / 5.2)	#10
E	.257 / .266 (6.5 / 6.8)	#12, #14, 1/4
F	.323 / .328 (8.2 / 8.3)	5/16
G	.386 / .391 (9.8 / 9.9)	3/8

Table I: Mechanical/Electrical Parameters for ArmorLite Material

Width Code	A ± .03	B	D		E	T		Nom. Resistance mOhm/m*(AWG Equiv.)		Weight gr/m*		Inductance nH/m (Ref. Only)		Max. Recommended Lug Code
			single-layer braid	double-layer braid		single-layer braid	double-layer braid	single-layer braid	double-layer braid	single-layer braid	double-layer braid	single-layer braid	double-layer braid	
12	.24 (6.1)	.375 (9.5)	.056 (1.4)	.072 (1.8)	.75 (19.1)	.016 (.4)	.032 (.8)	48 (22)	24	9.0	18	1277	1260	B
20	.43 (10.9)	.375 (9.5)	.072 (1.8)	.086 (2.2)	.75 (19.1)	.016 (.4)	.032 (.8)	26 (19)	13	13.4	26.8	1170	1159	F
24	.52 (13.2)	.5 (12.7)	.072 (1.8)	.086 (2.2)	1.00 (25.4)	.016 (.4)	.032 (.8)	23 (18)	11.5	17.9	35.8	1116	1109	G
32	.76 (19.3)	.5 (12.7)	.102 (2.6)	.123 (3.1)	1.00 (25.4)	.021 (.5)	.042 (1.1)	13 (16)	6.5	35.8	71.6	1047	1040	G
40	.88 (22.4)	.5 (12.7)	.102 (2.6)	.123 (3.1)	1.00 (25.4)	.021 (.5)	.042 (1.1)	11 (15)	5.5	40.3	80.6	1034	1027	G
48	1.02 (25.9)	.5 (12.7)	.102 (2.6)	.123 (3.1)	1.00 (25.4)	.021 (.5)	.042 (1.1)	8 (14)	4	53.8	107.6	983	976	G
64	1.15 (29.2)	.5 (12.7)	.102 (2.6)	.123 (3.1)	1.00 (25.4)	.021 (.5)	.042 (1.1)	6 (12)	3	71.7	143.4	936	930	G

* Braid only, figures exclude termination lugs. **Test current is defined as the current required to reach 200° C at ambient temperature