

CThru Mesh® Protects Aircraft From Lightning Strike Damage



Insights on Technology Advantages, Materials, Sizes





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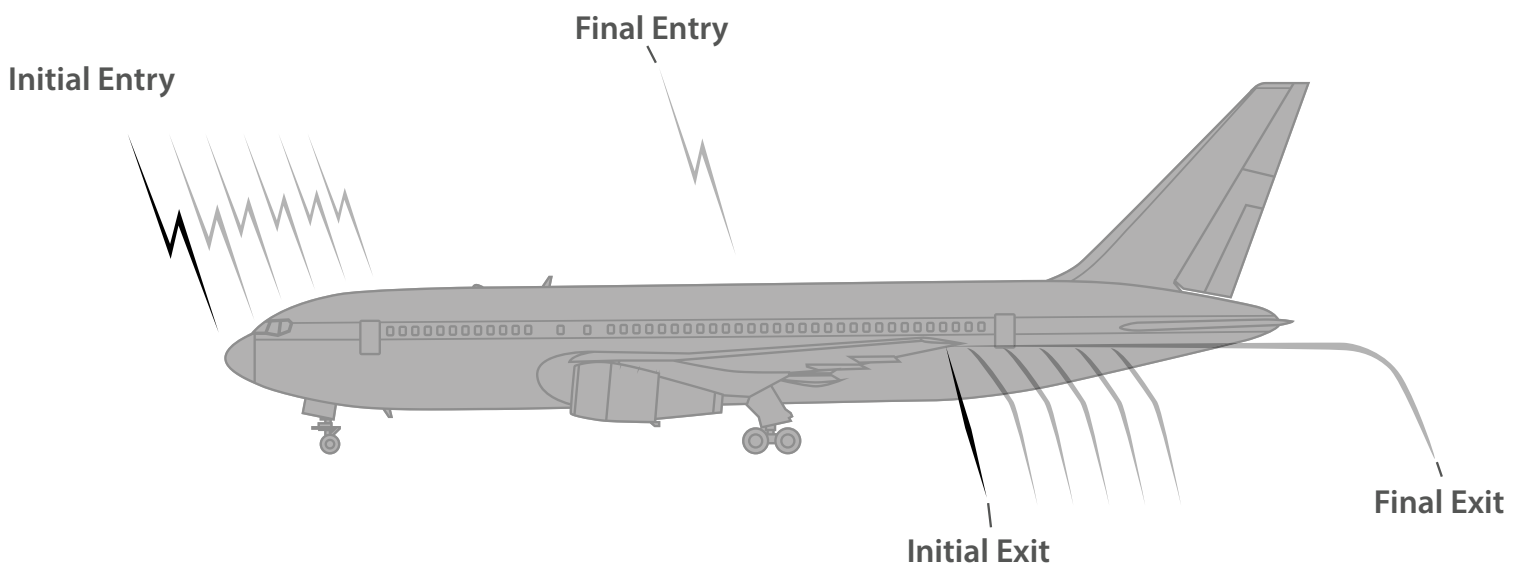
CThru Mesh® expanded metal foils provide lightning strike protection for aircraft by effectively distributing high energy bursts across the surface area of composite materials.

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Aircraft Lightning Strikes

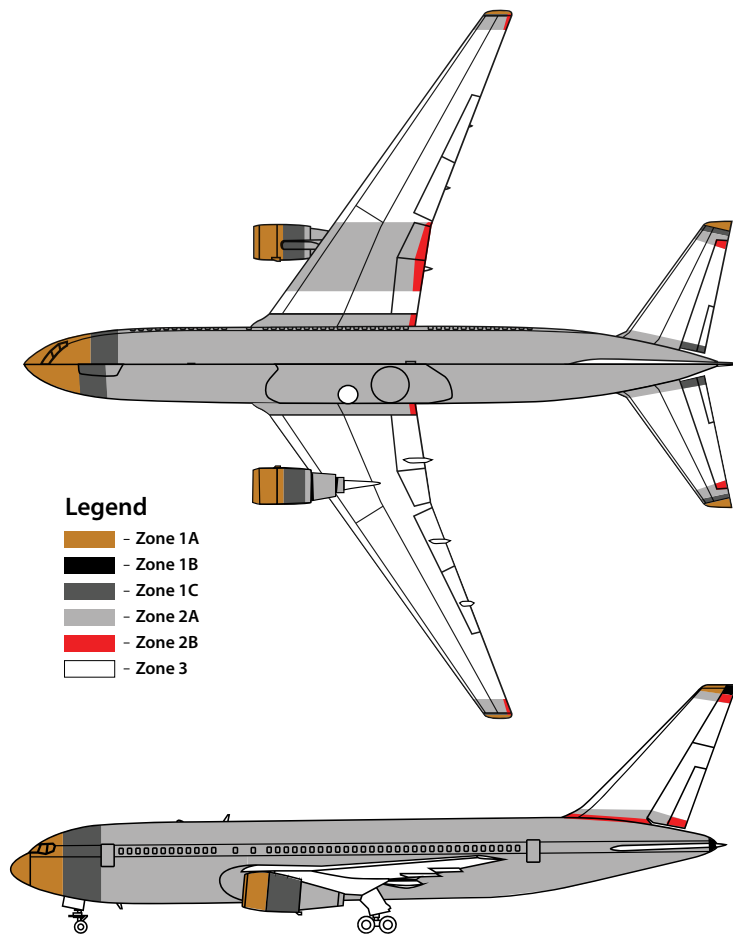
Lightning strikes can deliver as much as 1,000,000 volts or 30,000 amps to aircraft in flight. This instantaneous introduction of energy across the leading edges of the plane can cause damage to radome, nacelles, wing tips, horizontal stabilizer tips, vertical fin tips, flaps, landing gear, and air data sensors as it exits to the ground to complete the circuit.

While lightning strikes on aircraft are relatively common, significant events are rare because of the technology engineered into the aircraft. The metal skin of an aircraft is thick enough to protect internal spaces from a strike and severely reduce electromagnetic energy from entering electrical wires. But aircraft are continuously leveraging composite material to become lighter, stronger, and faster. These materials are poor electrical conductors that introduce risk into the overall lightning protection of the aircraft



CThru Mesh® Provides Aircraft Lightning Strike Protection

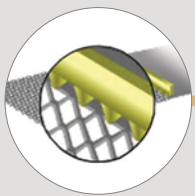
CThru Mesh® expanded metal foil is designed to be easily incorporated into the manufacturing processes used for aircraft components leveraging composite materials to protect them from lightning strikes. By including CThru Mesh®, the voltage and amperage of a lightning strike are distributed over the surface area of the component allowing it to exit without damage to the carbon fiber or other composite materials used in critical components.



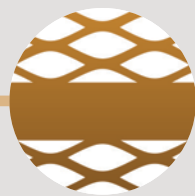
This technology is designed to provide protection for components in Zone 1A and 1C as designated by SAE ARP 5414. Top aerospace and aircraft suppliers across the world rely on CThru Mesh® to keep their critical composite components with complex shapes and surfaces safe from lightning strikes.

The CThru Mesh® Advantage

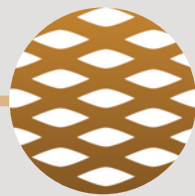
How It's Made



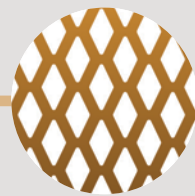
Expand Raw
Material



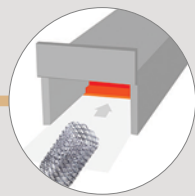
Solid Sections
Possible



Flattening



Stretching



Annealing

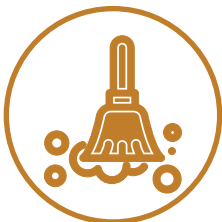


Blanking /
Forming



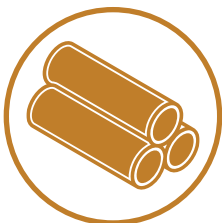
Quality

The CThru Metals team developed a high volume, scalable, proprietary metal foil expanding process to produce CThru Mesh® that results in material that is far more consistent dimensionally when compared to other options on the market and provides consistent resistivity over the entire surface.



Clean

We use no lubrication in our expanded metal foil manufacturing process. This allows us to provide you with material that is cleaner than any other supplier. There are no additional preparation costs required when using CThru Mesh®; it is ready to use right off the roll.



Rolls

Our process also allows us to produce longer rolls of expanded metal foil material than any other supplier. The only limitation on the length of a roll of CThru Mesh® is the weight you prefer for the finished rolls.



Savings

Our proprietary production system allows us to run faster than any other supplier. This means we can produce more material for you in a much shorter time period. This results in a more economical material that will meet and exceed requirements while providing you with a stronger overall margin on your components or projects.

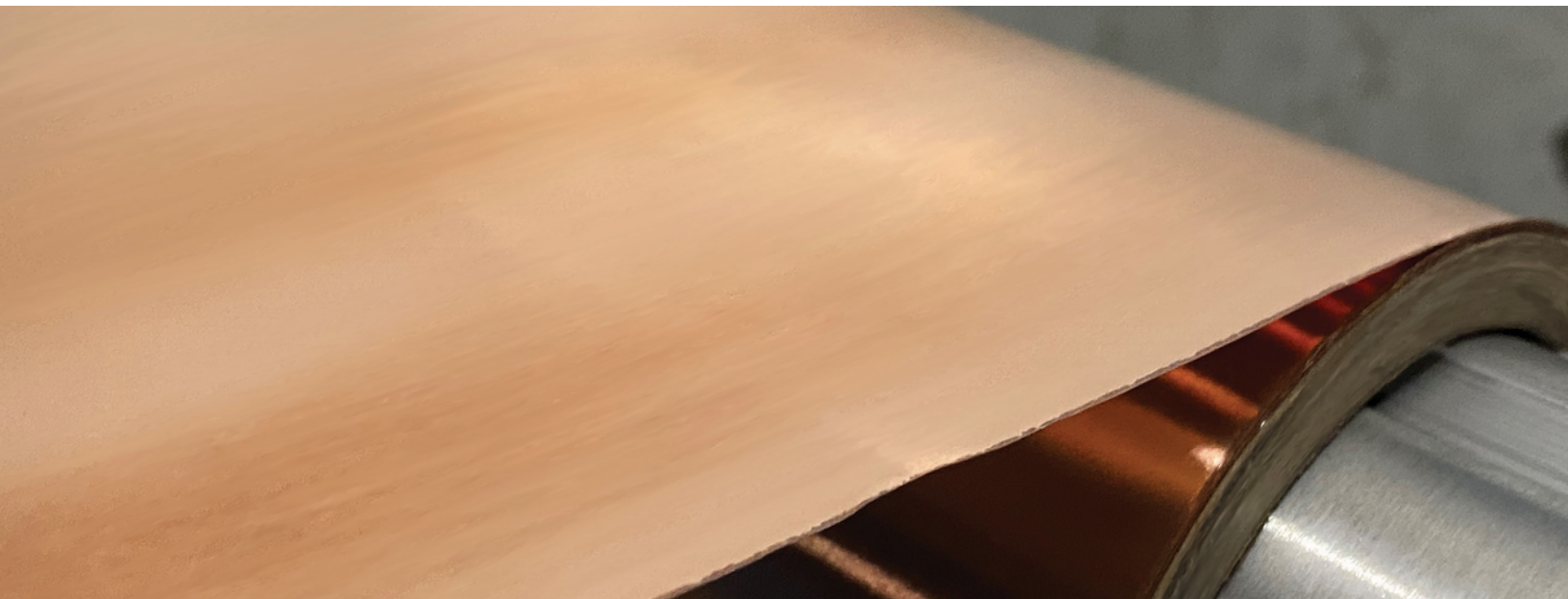


Speed

As the CThru Metals production process is scalable to all expanded metal foil dimensional configurations with tooling changes done in minutes, not hours, we can provide shorter lead times than other suppliers. You get your CThru Mesh® material orders quickly, allowing you to hit your project timelines and delivery dates.

CThru Mesh® Materials

CThru Mesh® lightning strike protection is available in copper and aluminum for standard configurations. The CThru Metals team can produce custom configurations of CThru Mesh® in almost any metal or alloy that your needs require for aircraft lightning strike protection. Our engineering team is ready to work with you to fulfill your needs.



How To Order CThru Mesh® For A New Project

CThru Metals can provide both custom and standard configurations for CThru Mesh® expanded metal foil. Be prepared to provide the following information for custom material and dimensions:

TRMA

Type of Raw Material Alloy.

There are various raw material alloys available, each offering its own unique properties and benefits. It is crucial to consider your application's requirements for cost, corrosion resistance, density, hardness, yield strength, tensile strength, elongation, magnetism, bend rating, and more when choosing the right expanded metal material.

RMT

Raw Material Thickness.

Years ago, metal foil could be expanded as thin as 50 microns and less than 1 meter in width. Today, metals can be expanded down to 25 microns and more than 1 meter in width, with more advanced technologies capable of expanding metals even wider.

CW

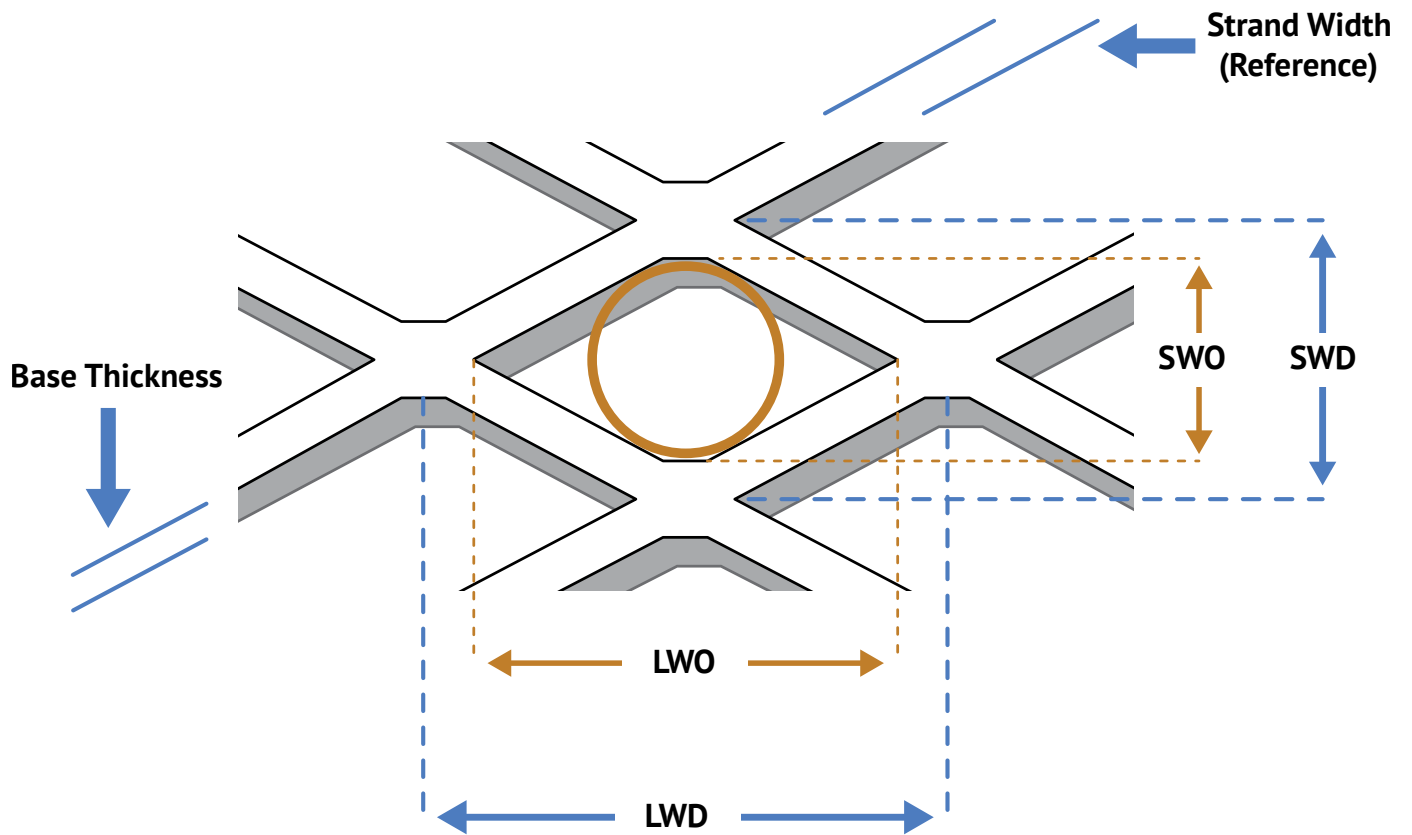
Coil Width.

Creating expanded metal foil involves slitting and stretching a lightweight metal coil to produce a consistent mesh pattern of openings.

REL

Raw Expand Length.

Expanded metal is an ideal solution for applications where weight is crucial due to its ability to be produced thinner than alternative open area materials. Long coil lengths are only limited by raw material availability and finished coil weights.



SW

Strands Width (SW).

Key measurements of expanded metal mesh include strand width (SW). This refers to the amount of material that should be slit from the parent material to form the opening.

SWD

Short Way of The Diamond (SWD).

This refers to the distance from one joint's center to the adjacent joint's center across the diamond's short axis.

LWD

Long Way of The Diamond (LWD).

This refers to the distance from one joint's center to the adjacent joint's center across the diamond's long axis.

L

Leveling.

If your project is working with leveled materials, you must provide the thickness of the leveled/flattened material (manufactured material thickness).

Custom Configurations of CThru Mesh® For Aircraft Lightning Strike Protection

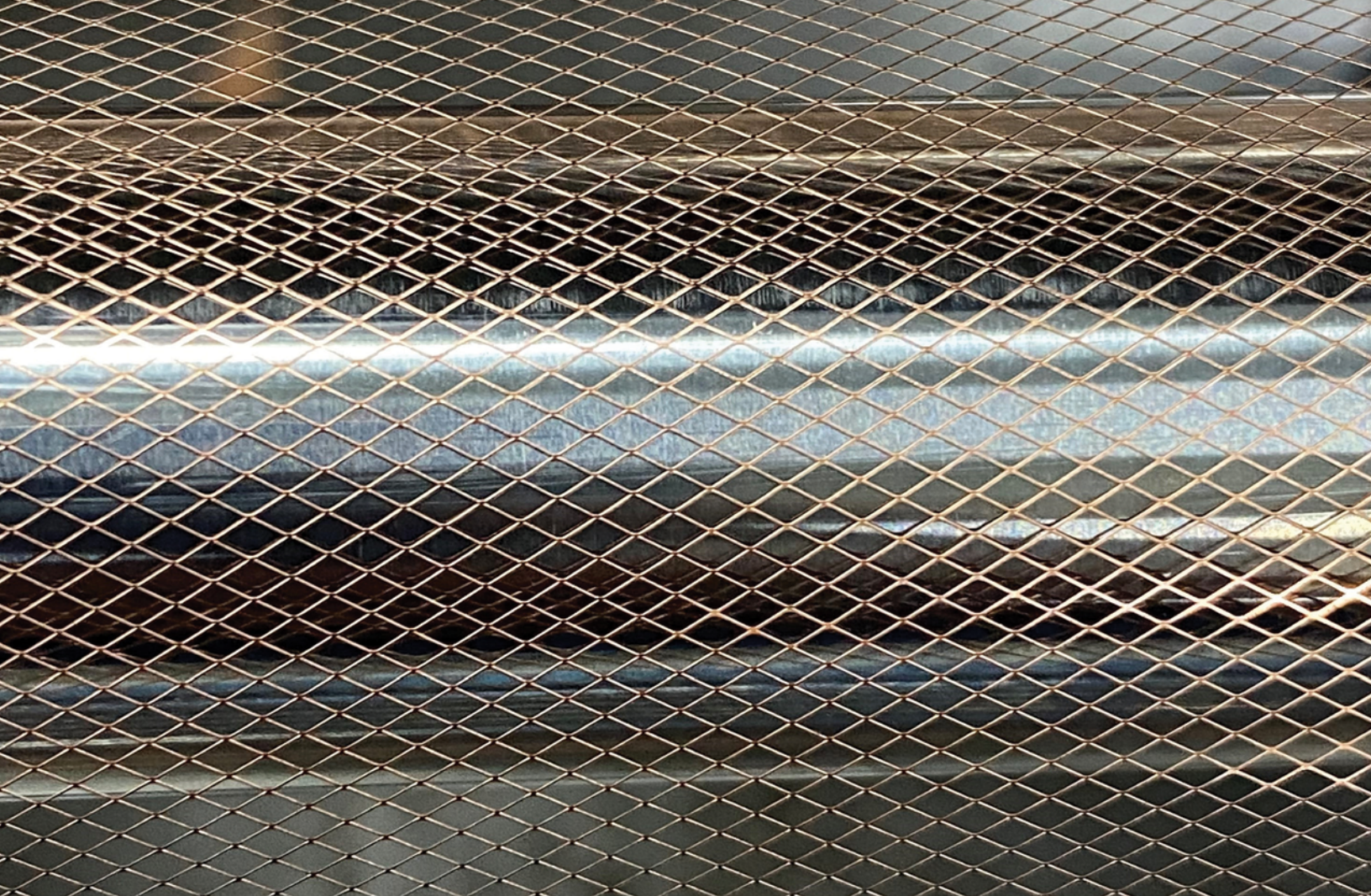
CThru Metals provides CThru Mesh® expanded metal foil in standard diamond sizes from 0.75mm - 13.0mm, with the number of openings per square inch varying from 25 to 5,000. We can also manufacture your custom expanded metal configuration based on pattern, thickness, width, material, and blanking/forming the design.



Standard Configurations of CThru Mesh® For Aircraft Lightning Strike Protection

In order to help expedite your ordering process, we offer standard configurations of CThru Mesh® in both Aluminum and Copper.

Copper - Standard CThru Mesh® Specifications					
CThru Mesh®	Original Material & Thickness, mm (inches)	Weight g/Sq. M (Lb/Sq. Ft)	LWD, mm (inches)	Final Thickness, Mm (inches)	Open Area
CU110-2-4-100	110 Copper 0.050 (0.002")	73 (0.015)	2.50 (0.100")	0.100 (0.004")	84%
CU110-2-4-100-F	110 Copper 0.050 (0.002")	73 (0.015)	2.50 (0.100")	0.050 (0.002")	84%
CU110-2-6-100	110 Copper 0.050 (0.002")	107 (0.022)	2.50 (0.100")	0.127 (0.005")	76%
CU110-2-6-100-F	110 Copper 0.050 (0.002")	107 (0.022)	2.50 (0.100")	0.050 (0.002")	76%
CU110-3-7-125	110 Copper 0.075 (0.003")	142 (0.029)	3.20 (0.125")	0.127 (0.005")	79%
CU110-3-7-125-F	110 Copper 0.075 (0.003")	142 (0.029)	3.20 (0.125")	0.075 (0.003")	79%
CU110-3-7-100	110 Copper 0.075 (0.003")	195 (0.040)	2.50 (0.100")	0.127 (0.005")	70%
CU110-3-7-100-F	110 Copper 0.075 (0.003")	195 (0.040)	2.50 (0.100")	0.075 (0.003")	70%



Aluminum - Standard CThru Mesh® Specifications

CThru Mesh®	Original Material & Thickness, mm (inches)	Weight g/Sq. M (Lb/ Sq. Ft)	LWD, mm (inches)	Final Thickness, Mm (inches)	Open Area
AL1235-2-8-075-F	1235 Aluminum 0.050 (0.002")	66 (0.014)	1.90 (0.075")	0.050 (0.002")	52%
AL1235-4-8-080	1235 Aluminum 0.100 (0.004")	78 (0.016)	2.00 (0.080")	0.150 (0.006")	71%
AL1235-4-8-080-F	1235 Aluminum 0.100 (0.004")	78 (0.016)	2.00 (0.080")	0.050 (0.002")	71%
AL1235-5-10-080-F	1235 Aluminum 0.127 (0.005")	137 (0.028)	2.00 (0.080")	0.127 (0.005")	60%

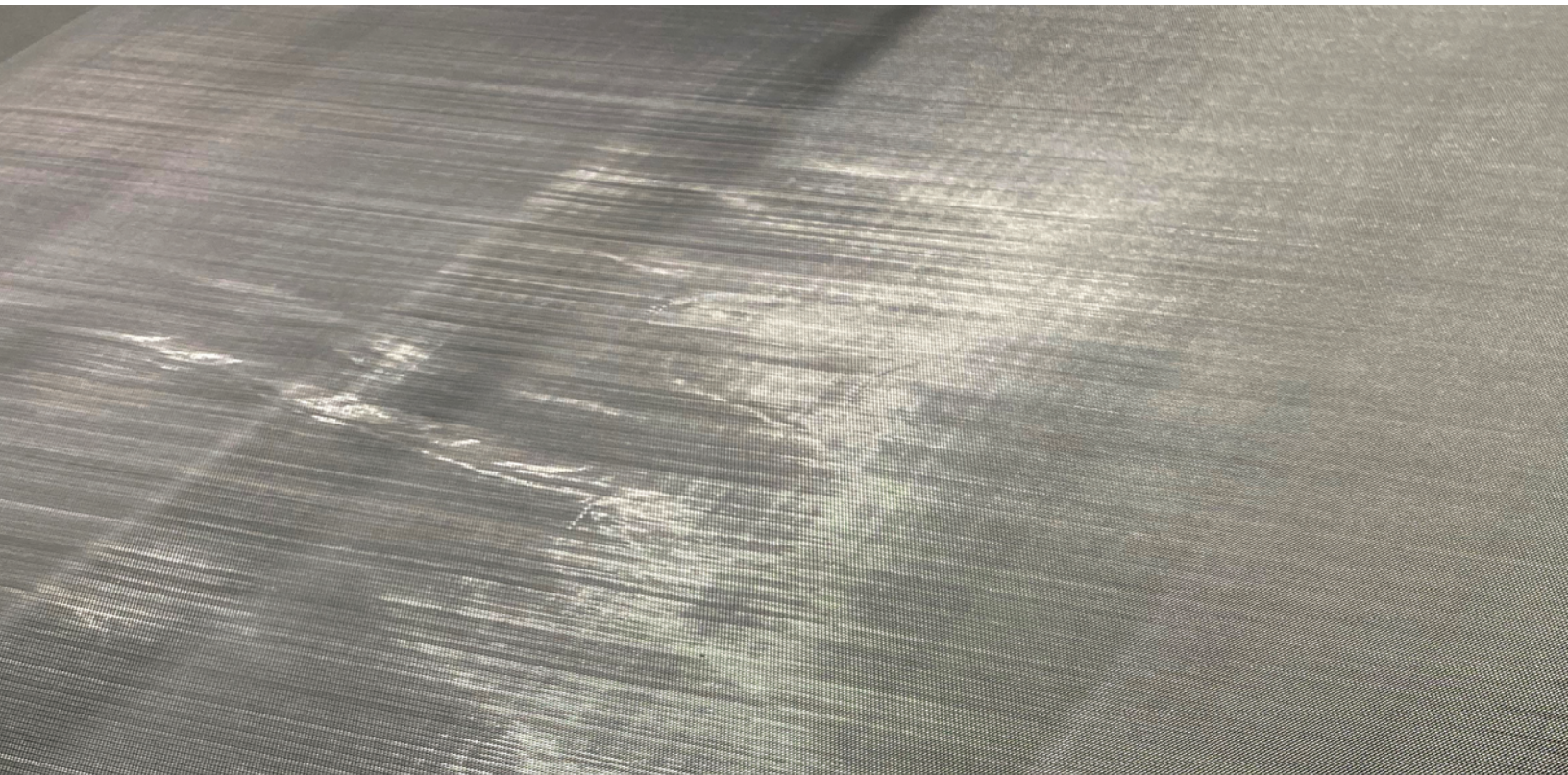
CThru Mesh® Easily Replaces Other Expanded Metal Foil Products

The CThru Mesh® production process can produce any expanded metal foil opening configuration that you require. There is no tooling investment required to switch to CThru Metals as your supplier. Just supply the custom dimensions and specification of the material you are currently using for aircraft lightning strike protection and we can produce this for you. If you are using a standard size from your current supplier, just refer to our “CThru Mesh® Product Replacement Cross Reference Guide” below to find the corresponding CThru Mesh® part number.

Copper - CThru Mesh® Product Replacement Cross Reference Guide			
CThru Mesh®	Dexmet MicroGrid®	Niles Micromesh LSP™	AstroSeal Astrostrike®
CU110-2-4-100	2CU4-100A	CU73	CU015CX36
CU110-2-4-100-F	2CU4-100FA	CU73F	-
CU110-2-6-100	2CU6-100A	-	CU022CX36
CU110-2-6-100-F	2CU6-100FA	-	-
CU110-3-7-125	3CU7-125A	CU142	CU029CX36
CU110-3-7-125-F	3CU7-125FA	CU142F	-
CU110-3-7-100	3CU7-100A	CU195	CU040CX31
CU110-3-7-100-F	3CU7-100FA	CU195F	-

Aluminum - CThru Mesh® Product Replacement Cross Reference Guide

CThru Mesh®	Dexmet MicroGrid®	Niles Micromesh LSP™	AstroSeal Astrostrike®
AL1235-2-8-075-F	2AL8-075F	AL66F	-
AL1235-4-8-080	4AL8-080	AL78	-
AL1235-4-8-080-F	4AL8-080F	AL78F	-
AL1235-5-10-080-F	5AL10-080F	AL137F	AL028CX36



You can **request a sample** of both standard and custom configurations of CThru Mesh® to test for your application or feel free to **contact the CThru Metals engineering team** to schedule a discussion for your next aircraft strike protection project.



Expanded Metal Solutions From CThru Metals

Our Mission: Deliver the highest quality expanded metal with industry-leading coil widths, at a cost to meet every budget.

Our Story: CThru Metals began as an idea inside a well-established metal stamping company.

Working in the stamped metals industry for over 30 years, CThru's management team realized they could provide a much-needed solution to their aerospace, renewable power, automotive, filtration, and other industry clients. Many of these clients required expanded metal for air and liquid filtration, electrical resistivity and conductivity as a base metal for lightning strike protection.

Quality and dependability were especially critical in these applications, and we believe no other company in the expanded metal industry could deliver such a product at a cost-effective price. Leveraging our engineering expertise, we set out to innovate a century-old industry with 21st century precision.

To learn more about our custom expanded metal solutions and capabilities, please request a quote.

[REQUEST A QUOTE](#)

14 Commerce Drive North Branford, CT 06471

Phone 203-884-1017

cthrumetals.com

