

On the use of our unique C-MARC™ Litz type wire and cable.

We gladly sell **C-MARC™** bulk wire and cable for use in your project or production.

When ordering a longer length, it comes on small spools such as this.



This is a highly potent wire technology made primarily for ultimate sonic performance, so it is not fire retardant, and will not adhere to insurance norms or official certification requirements.

Because of this design freedom, they really do represent the best that's out there today for high end audio applications. One instantly hears this by a large and obvious degree. After ample burn-in sonics flow as naturally as it gets.

There are different ways to use the larger Coaxial version. See our PDF file 'C-MARC_4-6mm_from_coaxial.pdf' for more details.

These are Litz wires so you will need a soldering pot and liquid flux to prepare and tin the ends for electrical contact. Each of the individual $D=0.125\text{mm}$ strands is

individually lacquered. The lacquer is micron-thin but needs to be burned off and tinned, just like Cardas brand wire, prior to being soldered. This lacquer is not like magnet wire made for winding coils. In our implementation it is literally the thinnest technically possible amount. It is there to protect against oxidation and to provide conditions for the hum-bucking method implemented in our dual fractal design.

You can sculpt the ends as needed before tinning in order to achieve the very thickness you might need for any given specific soldering application.

Here is the liquid chemical flux we use.



Here is the tin we use which comes in bars.



We use 99/1 (99% tin, 1% copper). To make it melt faster the first time you put it in the empty pot, you can cut it into short pieces of something like 1.5 cm long.

We pour the flux chemical into a little glass jar.



After use it is important to close the jar back up as it evaporates rather quickly at room temperature. Failing to do this, within one night you may come back to find the jar empty. :)

These chemicals are not nice to breathe, so it requires good ventilation if you use it more often. This holds especially true with the larger wires where more copper mass is involved. You'll see how it goes.

We dip the prepared ends of the copper with all cotton removed (even the center core cotton must be removed) into the liquid flux and then immediately immerse them into the hot solder bath of the soldering pot. This process burns off the thin lacquer coating and electrically fuses all of the tiny copper ends together with tin. This process creates some smoke. If you are working with larger wire, you will want good ventilation. After tinning they are ready for soldering. The ends are still hot and liquid tin covered immediately upon removal from the pot, but they cool quickly in ambient temperature and solidify.

Please note: without a soldering pot you cannot use this Litz wire. A soldering iron is not enough to guarantee electrical contact of all lacquer covered copper strands.

As you can see in the following picture, there is remaining residue in the pot after tinning.



The residue always floats to the top. We scrape this off the top of the soldering pot with a small fork or something so that when you dip a fresh piece of wire, the surface of the liquid hot solder is clean and white.

I cannot tell you exactly what temperature we use. Our pot does not have an indicator in degrees. There are different sizes of C-MARC wire. The larger the size (the more strands that are connected and are dipped in at once), the longer we have to hold the end in the solder bath in order that also the middle strands get electrically connected.

Best practice is to first cut all strand ends an equal length, and only then dipping. You can then inspect the very end on axis to make sure there are no remaining black or dark areas in the middle of all the strand ends. If it is all white, you know for sure you have electrically connected all strands. After this procedure we never cut the already tinned ending, because it could possibly expose an internal

unconnected area inside. (A black dot may become visible in the middle.) But even if it does, it is possible to simply dip it again and burn off the newly exposed place where (now) unconnected wires were exposed by cutting. We almost never have to do this because we cut to needed lengths prior to dipping, not after.

The basic idea is to burn off the lacquer but never to burn off the tiny copper strands themselves. You also don't want to under-burn and leave lacquer on the wires. Again, I cannot provide you with a concrete temperature as our equipment just has a dial and it is not calibrated and there is no indicator. In the picture you can see where we generally have it set, but this doesn't mean much since each piece of equipment is different. To make your chosen temperature setting work all the time, always top off the soldering pot after use so that it remains at the same level and temperature (same mass of liquid solder will be in the pot all the time. But you'll have to "learn" the setting by some initial trial and error when you have a new pot.

It will require some test runs in order that the temperature and dip time are calibrated well.

Some useful pointers.

The Large size hook-up wire *a/ways* sounds better than the Small size, but as for how much, you have to decide yourself per application and budget constraints. The Small is an incredibly good performer just the same. We use both large and small in our DACs in different places. People use Large and Small as internal wiring in loudspeakers, to superb effect. Usually Small is used for the usually longer runs to the tweeter, where much less current flows from the crossover anyway.

If you use this wire with power voltages, don't rely on the pure cotton dielectric. If you can, run the wires such that you are guaranteed they will never make contact with other potentials. This will allow you to safely avoid using plastics. But if you can't guarantee the wires won't touch other potentials mechanically, then you really should add additional heat shrink dielectric protection at those crucial points. Always better safe than sorry! But do avoid plastics where it is safe to do so.

Please, never be so extreme in your implementation that safety is sacrificed.

Consider also our unique DIY Firewall for Loudspeakers. These are small components which you can use in many applications throughout your designs. On internal signal connections it does wonders. These can be line level signals, speaker level signals, DC lines, or power level lines.

https://www.lessloss.com/docs/fw/LessLoss_Firewall640x-SPK.pdf
https://www.lessloss.com/docs/fw/LessLoss_Firewall640x-SPK-schematics.pdf

Our very best DAC has 28 of these single polarity types onboard.

See our other PDFs for how to connect these on power voltages. Or you could use the much larger gauge DIY 640x for power, where all three lines, namely Live, Neutral and Ground, are all in one compact enclosure. The following PDFs describe this all-in-one unit.

https://www.lessloss.com/docs/fw/LessLoss_Firewall640x-PWR.pdf
https://www.lessloss.com/docs/fw/LessLoss_Firewall640x-PWR-schematics.pdf