

# EJONKLOU

## About cables

Everyone who has compared different cables knows that there are sonical and musical differences. What actually determines the sound character of a cable? I have found the following things to be important:

- The materials used
- The construction
- The connectors
- The soldering
- The direction

**The materials** used are always conductors and insulators. Usually there is one or several types of metal involved, insulated with some type/s of plastic. Expensive materials are e.g. silver and PTFE, while the more common copper and PVC are reasonably cheap. Expensive materials don't necessarily make a cable sound good, but often they have a different sonical character. The majority of the best cables I have heard have been made with rather inexpensive materials.

**The construction** is vitally important. It determines the electrical and physical properties of the cables and therefore affects the sound quality. If you e.g. remove the outermost sleeve of a cable that has several layers of insulation, the sound will change. Cables that are allowed to vibrate, are pinched or bent in a tight angle perform significantly worse. The golden rule is that the cable should not be under physical "stress".

**The connectors** are often more important than the cable. There are numerous parameters involved, such as materials, number of metal joints (unless it's in one piece) and contact pressure. The contact pressure should be just right, neither too high nor too low. This is often a problem when connectors are manufactured with high tolerances; one connector can have a very tight fit while the next one is loose.

**The soldering** is crucial. A great cable with high quality connectors can lose a lot of its performance with a bad solder joint. See my document "The art of soldering" for more information on this subject. Popular alternatives to soldering are to crimp, wound or screw. These mechanical

methods are practical, but usually perform worse than an optimally soldered connection. Optimised crimping can, however, outperform soldered connections in some applications.

Brazing and welding of cables are rather uncommon methods in the world of audio, but a few companies do use those methods. I have so far not had the chance to make a fair comparison between any of them and soldering, to determine which method is preferable.

**The direction** also makes an audible difference. I have yet to find a good scientific explanation why. Attempts at measuring the difference have been made by Ben Duncan but the topic is still frequently discussed on audio forums. I have, however, found that the best sounding directions follows certain logical rules. In January 2006 I discovered that for the last 15 years, my theory about cable directionality and AC signals had been wrong. One example is that loudspeaker cables should not be directed towards the speaker (+) and back towards the amplifier (-). Both polarities should have the same direction! It was a great feeling to find that I had been wrong, as the discovery brought a spectrum of new ideas on how to improve my electronic circuits.

Please note that most companies in the audio cable business just want your money. They don't care about music or how their products actually perform, their entire focus is on cheap manufacturing and great marketing. Therefore it is vitally important that you never, ever, consider the price when you compare cables. **No** relationship between the price of a cable and its musical performance exists. Just listen.