

Making 'HV' F-connectors.

Using regular F-connectors and satellite cable with a foamed PE insulator



Diagram 1: Left to right in the above picture; regular F-female to female parts, file off the peened end as far as the insulator, pressing out the parts, pressed parts (2xHDPE insulators + contacts), file both ends away, drill out slightly smaller than the insulator on the coax.

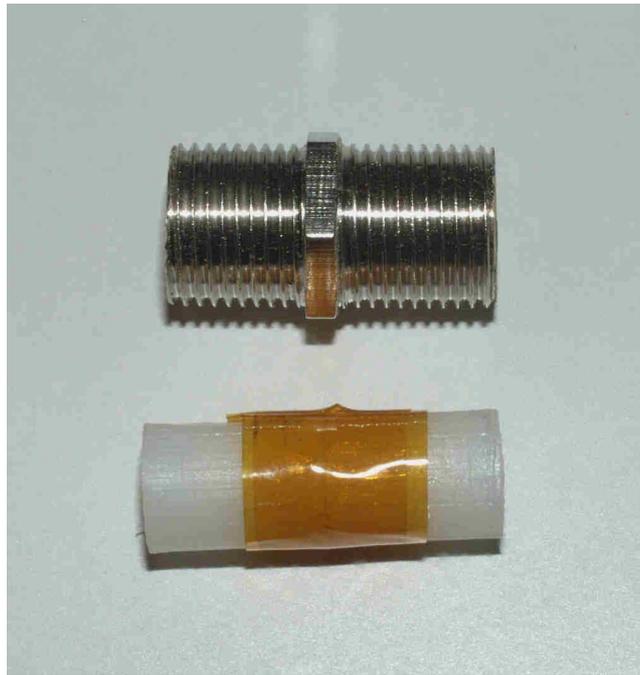


Diagram 2: reassemble the insulator and contacts, with a wrap of kapton around the gap. Press the parts back into the tube (tape both insulates the gap and wedges the parts in the shell).



Diagram 3: finished 'HV' F-type f-f connector.

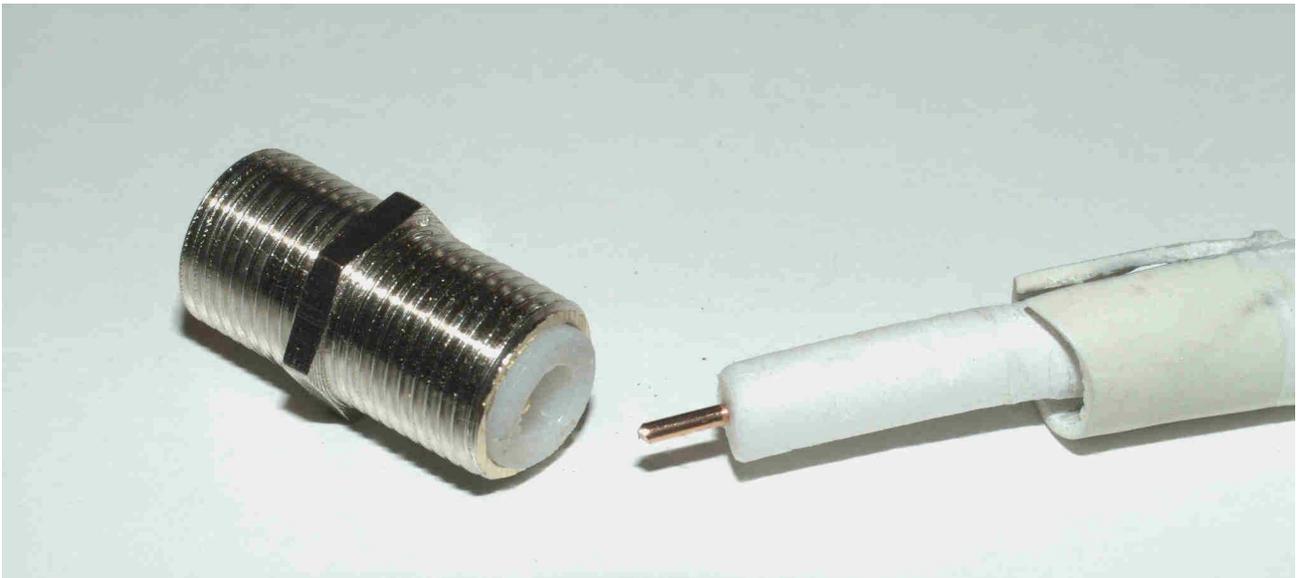


Diagram 4: 130dB satellite cable with expanded PE insulator.



Diagram 5: insulator inserts into female insulator, the foamed PE seals up around the hole leaving no exposed centre conductor (F-screw outer not show). A similar connection took 5 kV for ten minutes and 15kV for a minute without any indication of insulator breakdown.



Diagram 6; showing the compressed shape of the foamed PE after withdrawal (like foam ear-plugs!).

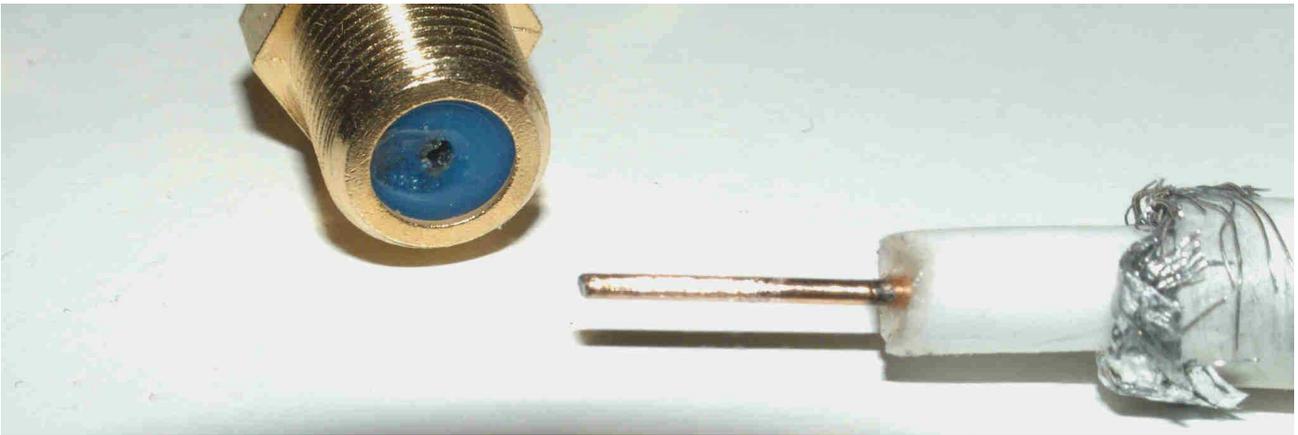


Diagram 7: What happens if you just use regular F-connectors? A plain-old F-connection was made and incremented in 100V with dwells of 1 minute. This connection held until 3,300V! Obviously, it went between the inner core and the outer at the closest point.

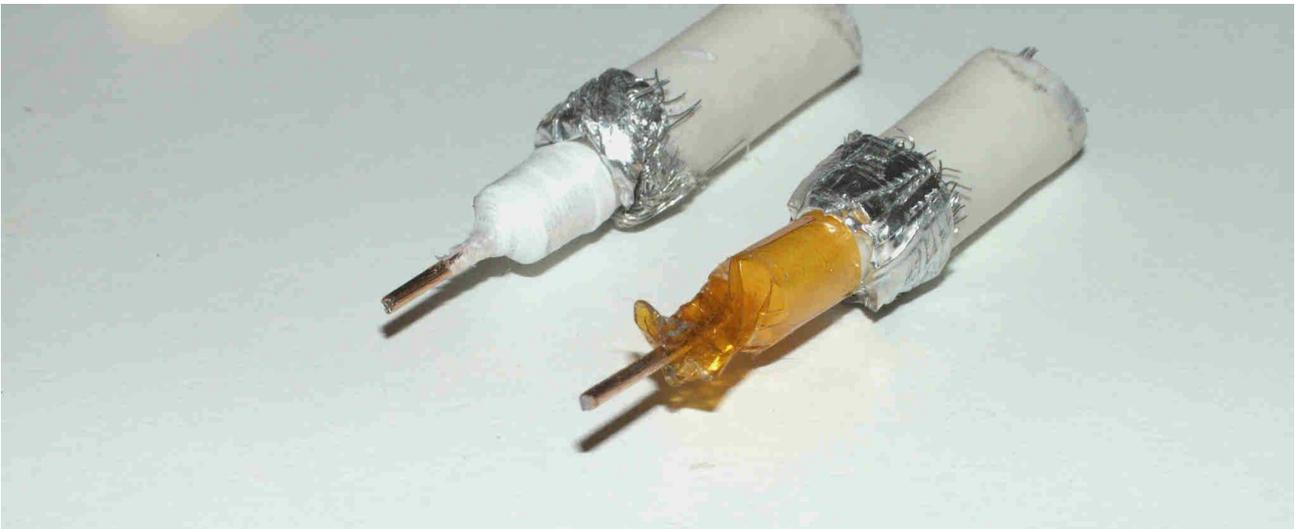


Diagram 8: Regular cables were also wrapped in teflon and kapton prior to insertion into an unmodified F-connector. These also took 5kV for 10 mins without any sign of breakdown, but the problem with such a setup is that the weakest area is hidden once the outer F-screw is tightened on and the tape might shift during tightening.