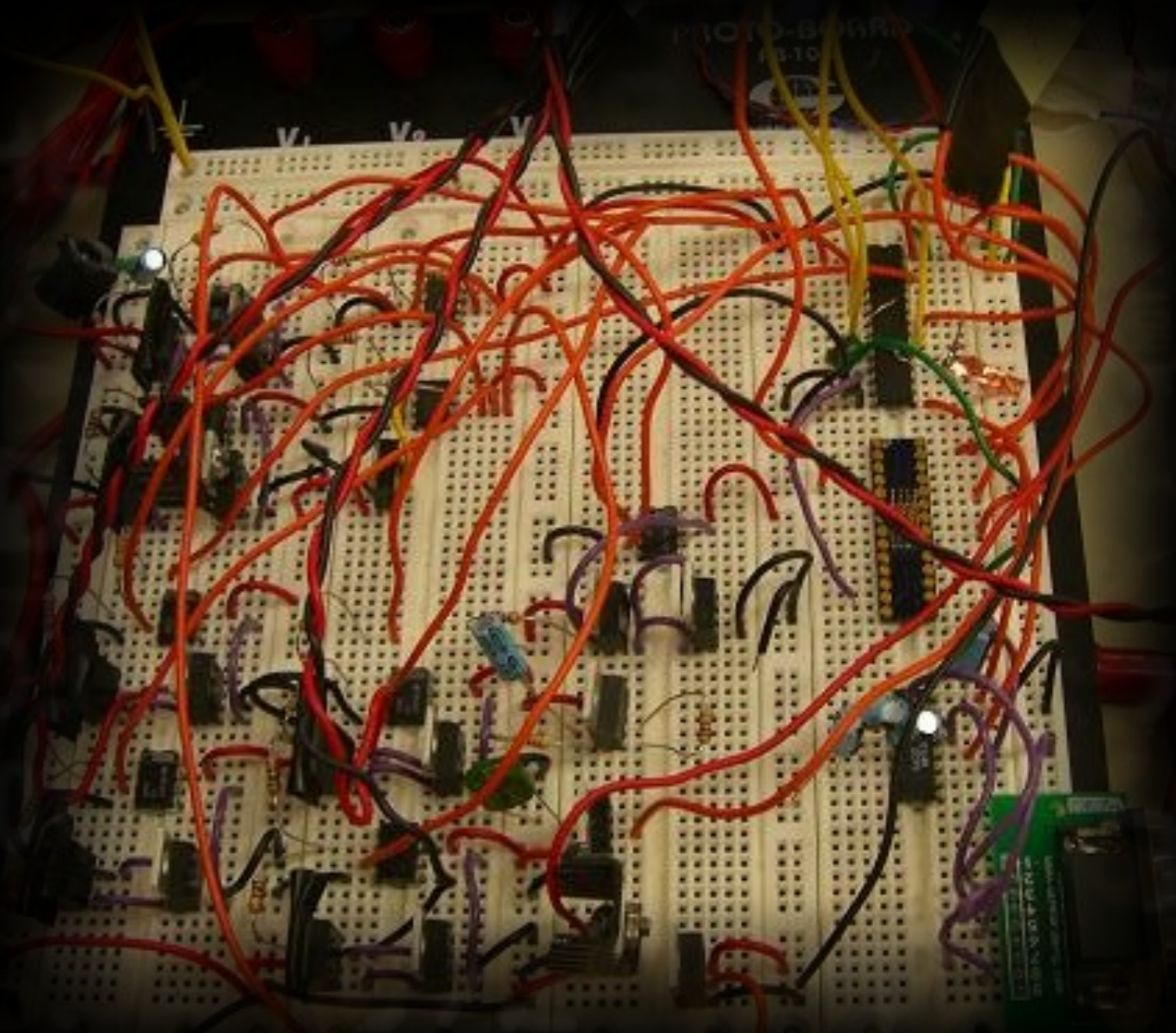
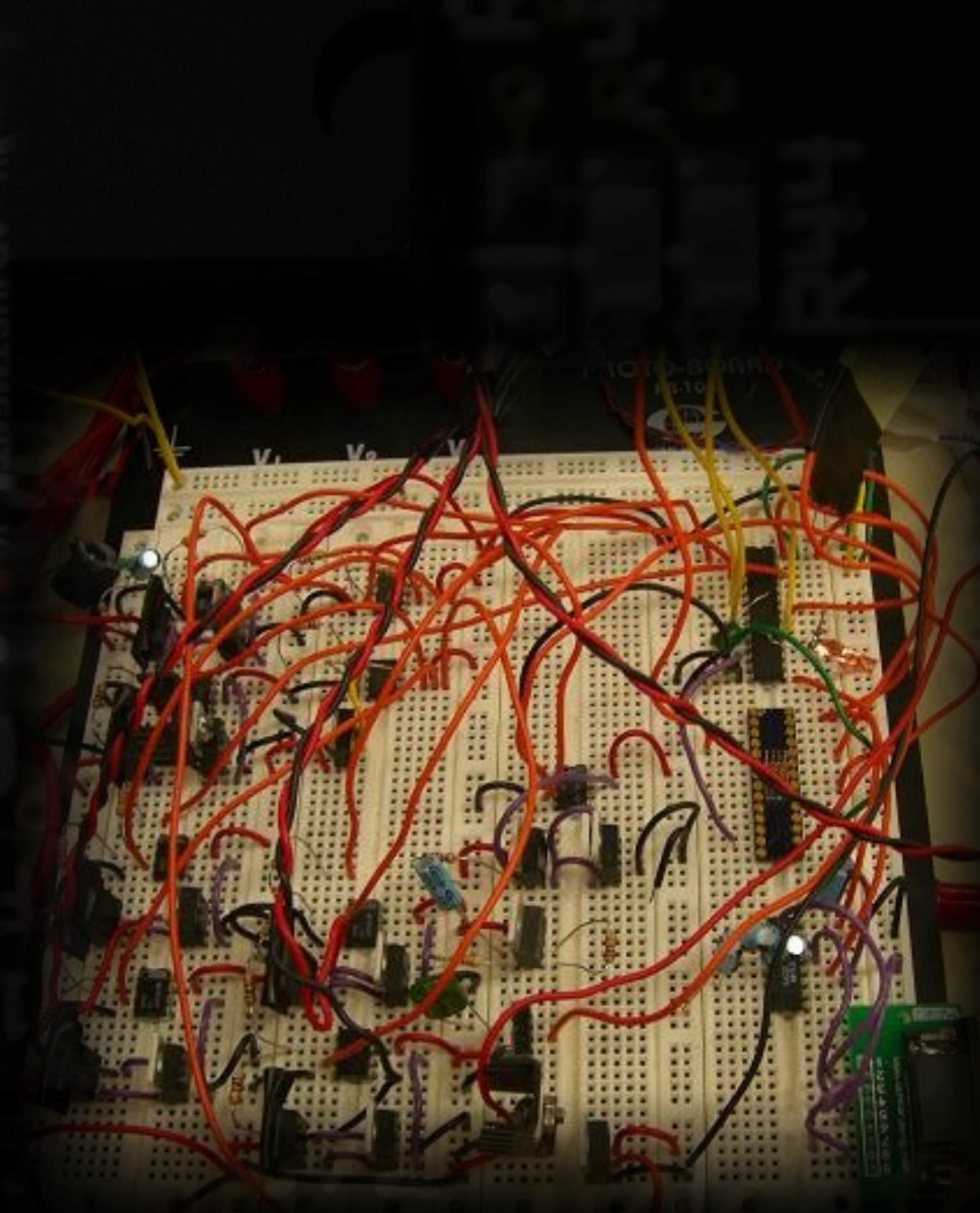
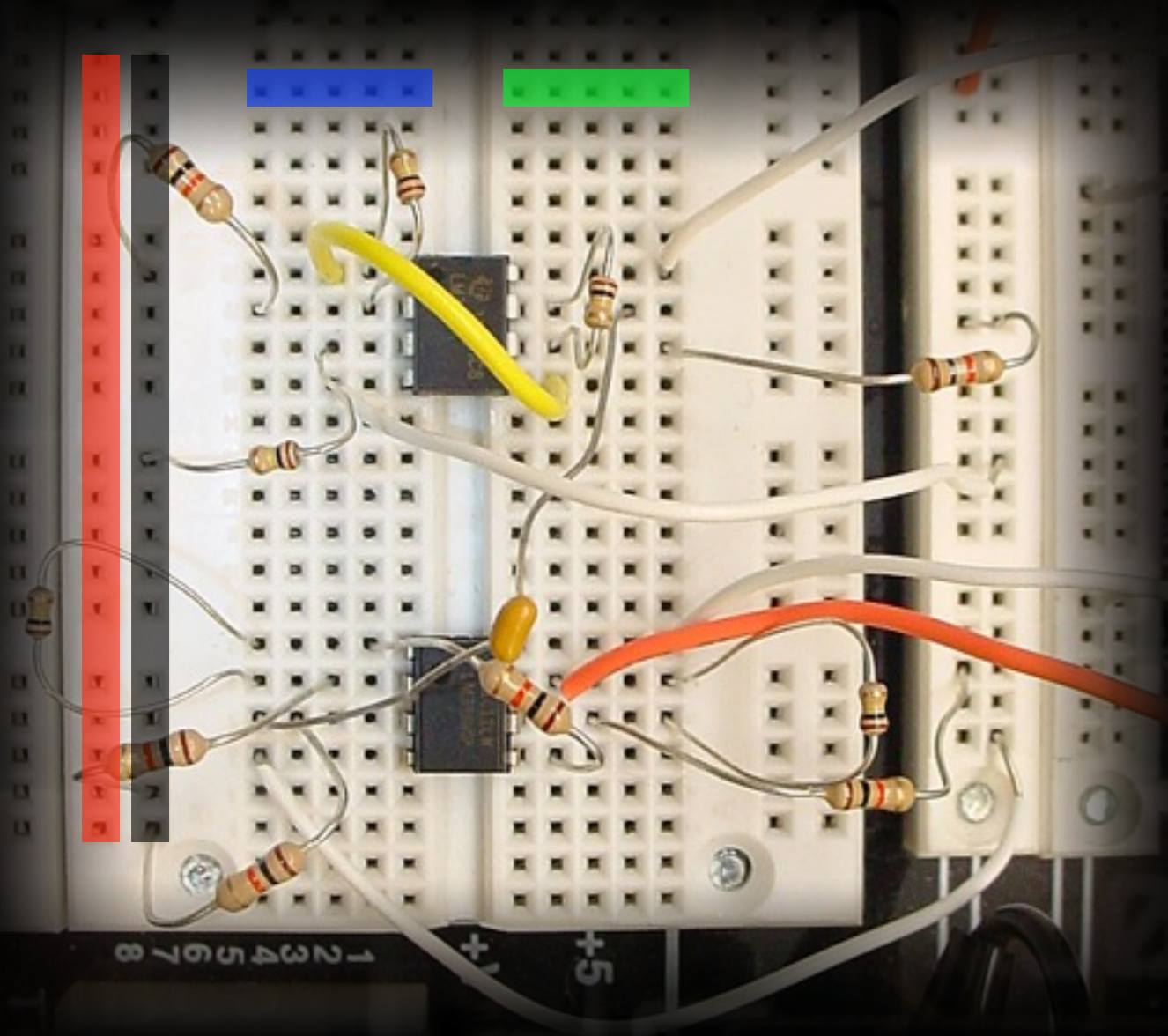


# Prototyping Circuits



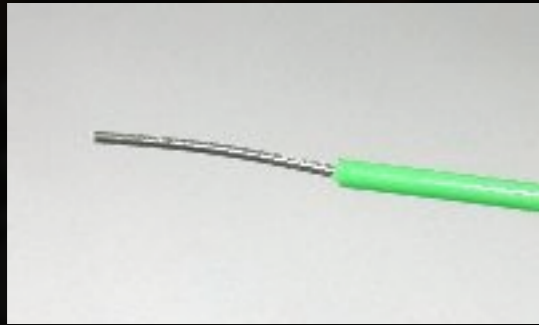
# solderless breadboards



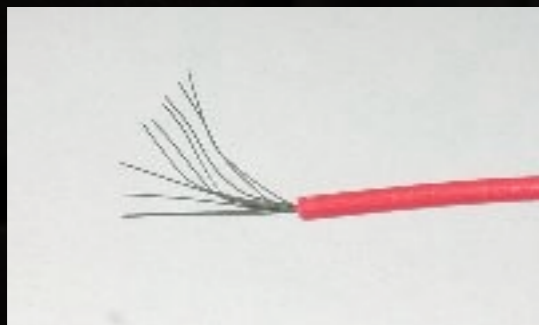


AWG	Dia. (thou)	Ohms/ 1000ft	Current (A)	Fusing Current
12	80.8	1.619	9.33	235
13	72	2.042	7.4	197
14	64.1	2.575	5.87	166
15	57.1	3.247	4.65	140
16	50.8	4.094	3.69	117
17	45.3	5.163	2.93	98.4
18	40.3	6.51	2.32	82.9
19	35.9	8.21	1.84	69.7
20	32	10.35	1.46	58.4
22	25.3	16.46	0.918	41.2
24	20.1	20.76	0.577	29.2
26	15.9	41.62	0.363	20.5
28	12.6	66.17	0.228	14.4
30	10	105.2	0.144	10.2

Solid core



Stranded

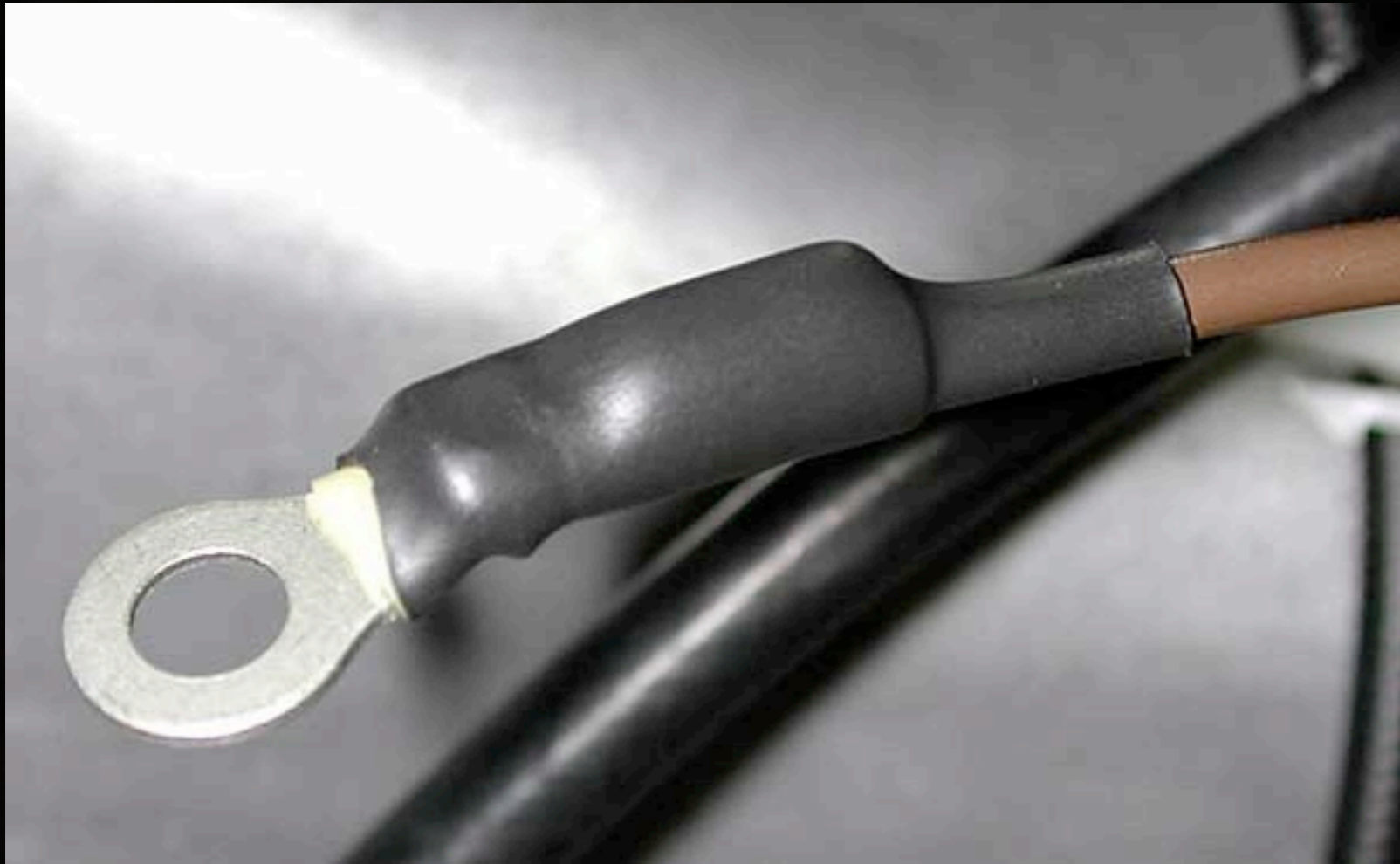


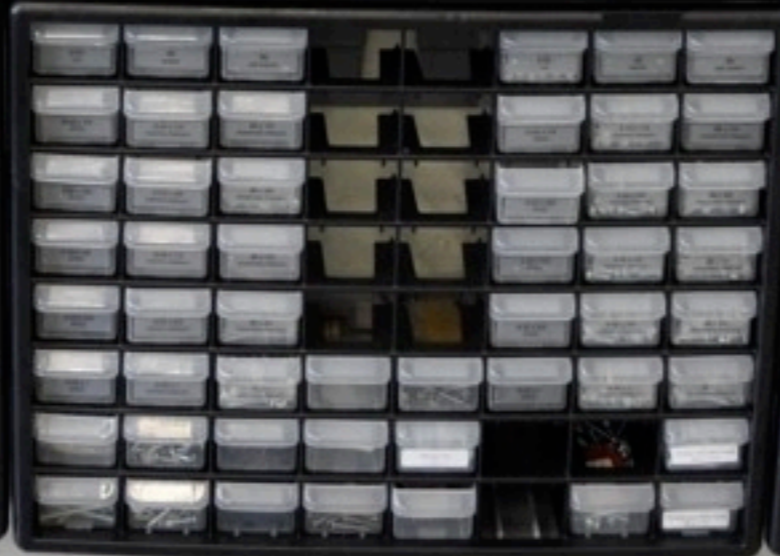
Current capacity

Pliability & fatigue

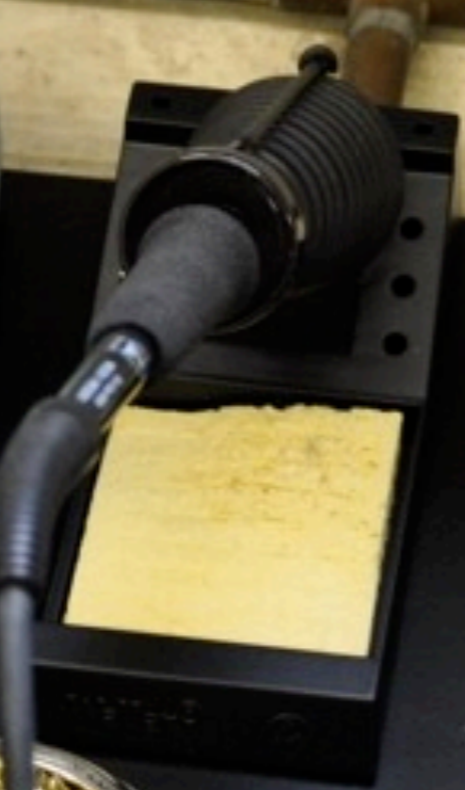
Use heat shrink

Use strain relief





# Soldering



**clean tip**

**clean surfaces**

**heat shrink on first!**

**heat target**

**tin your wires**





2007

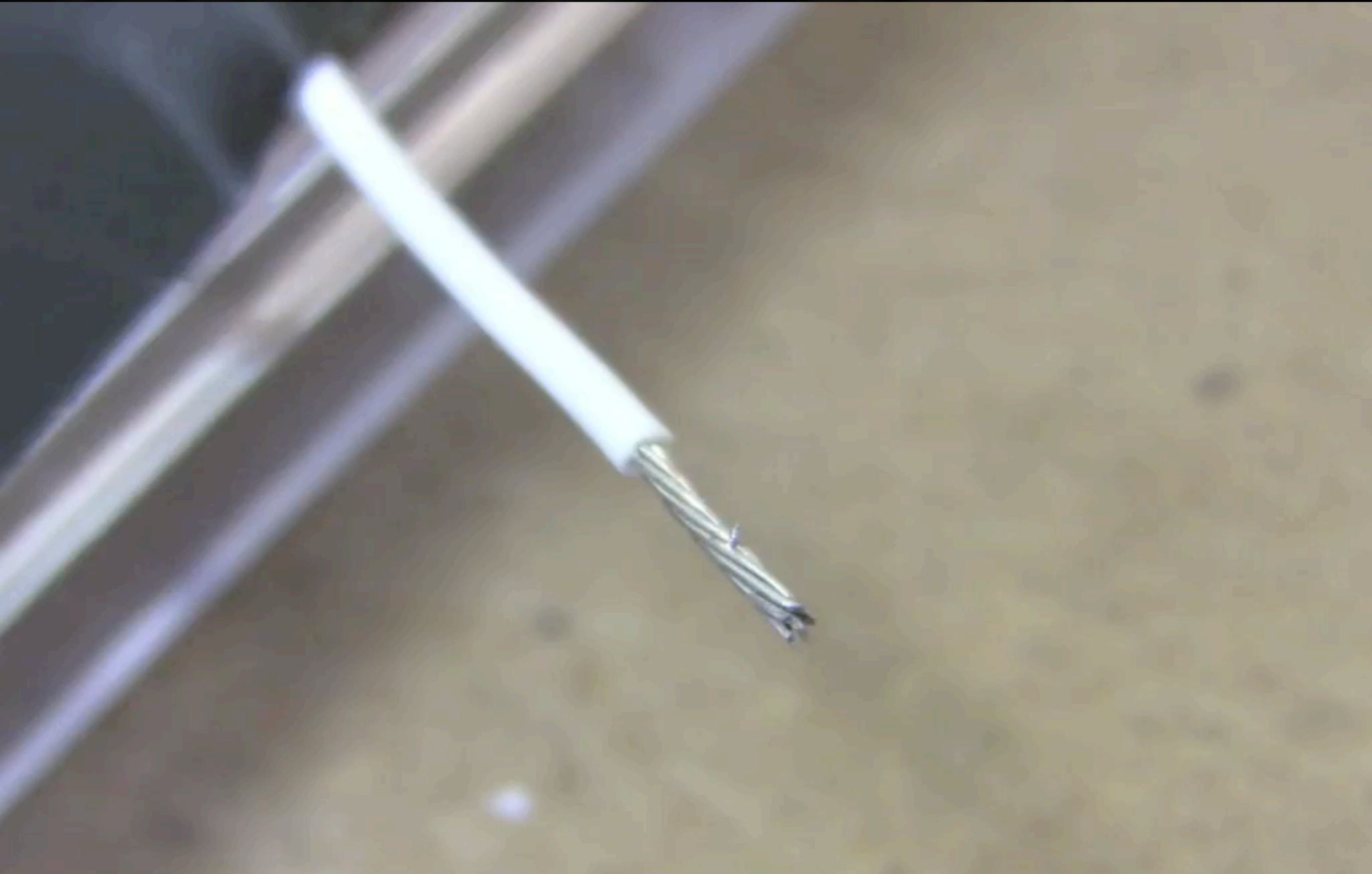
2007



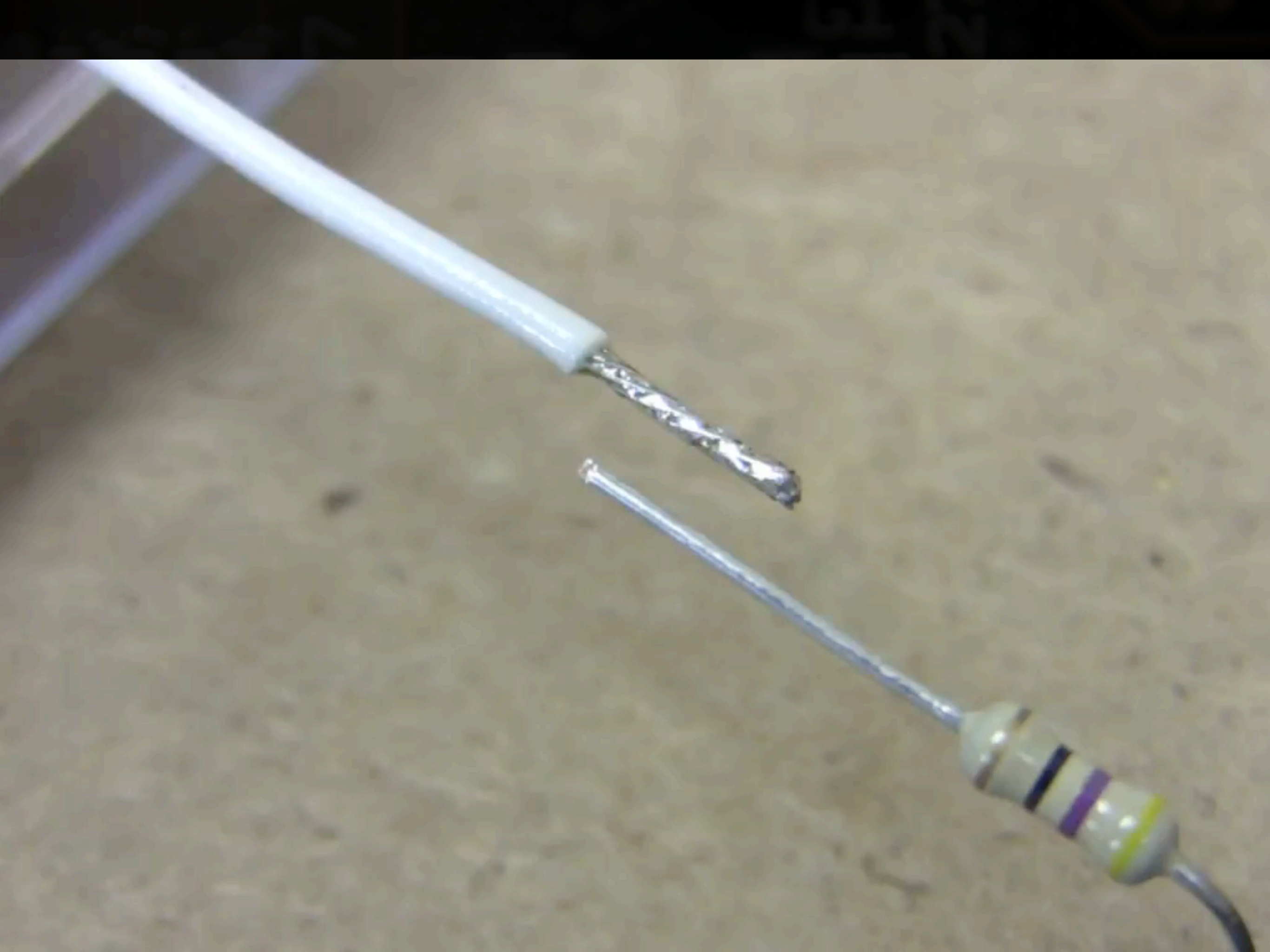
**working with stranded-core wire**



**working with stranded-core wire**



**tinning stranded-core wire**



A close-up photograph of various electrical connectors and wires. The image shows a dense collection of components, including gold-colored metal connectors, black plastic connectors, and wires of different colors (red, black, white, grey). The background is a plain, light-colored surface. The overall scene is a detailed view of electronic hardware components.

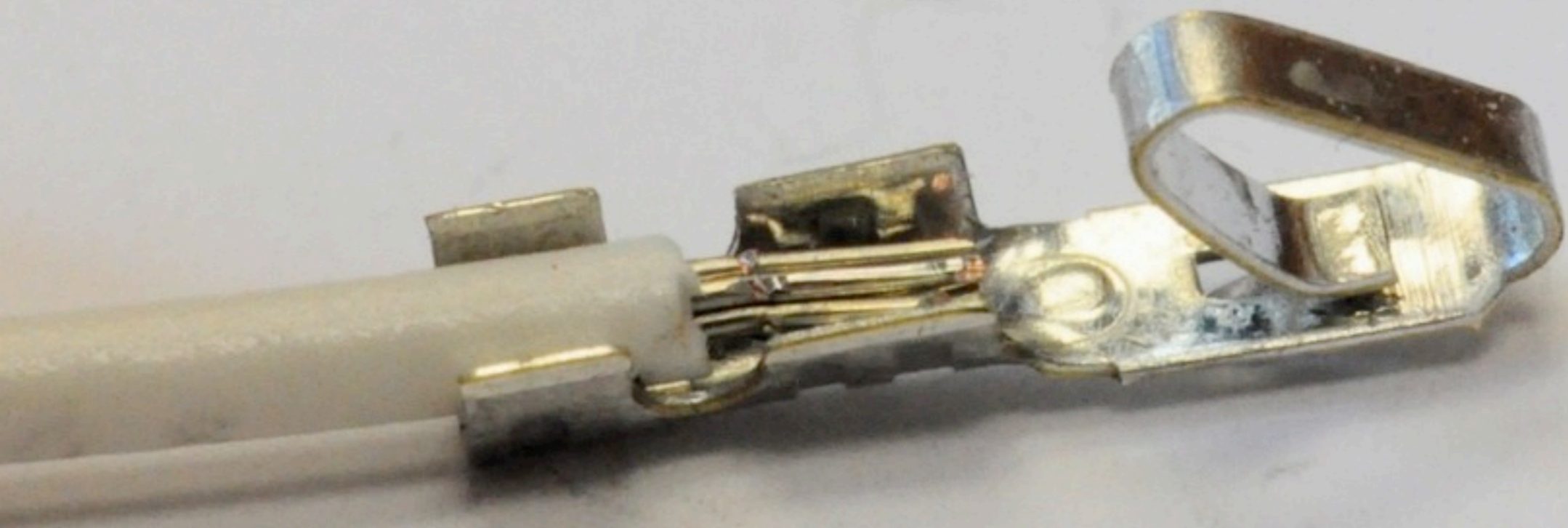
# Connections

Molex











1.6  
2.0

2.2

8.1

CONDUCT

1.6 (mm)

2.0

1.4

1.8

2.3

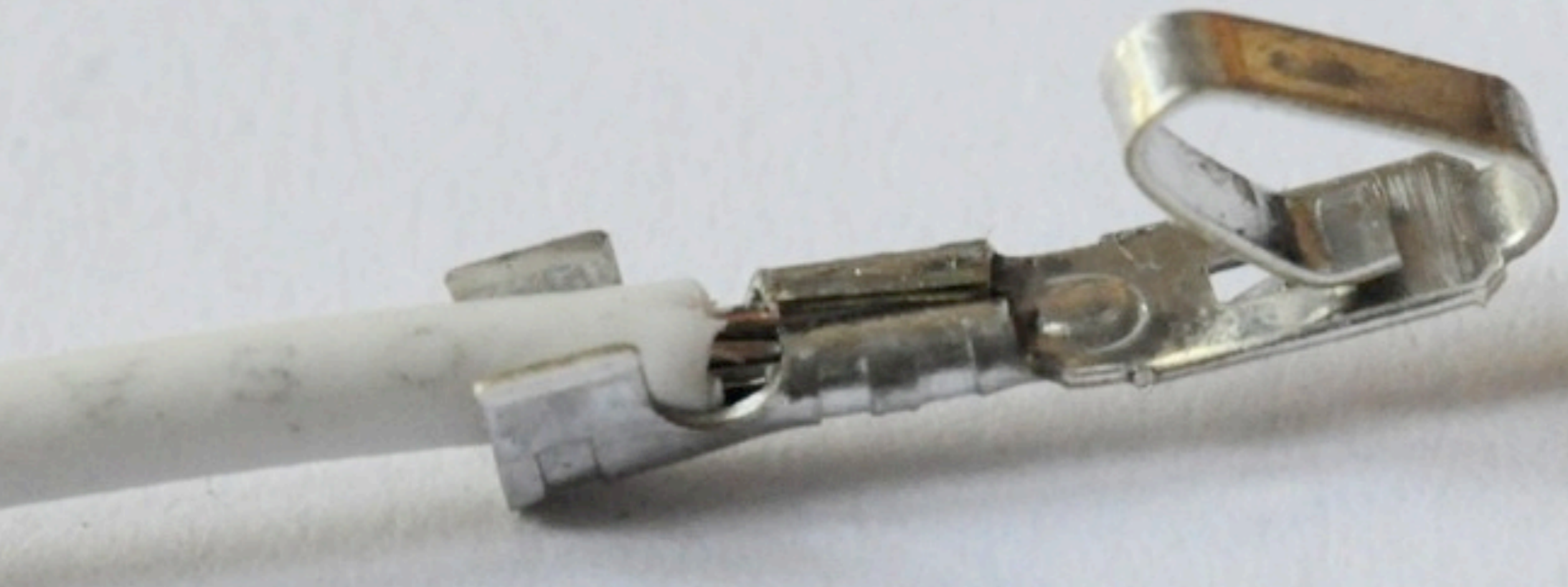




4

1.08

2.3

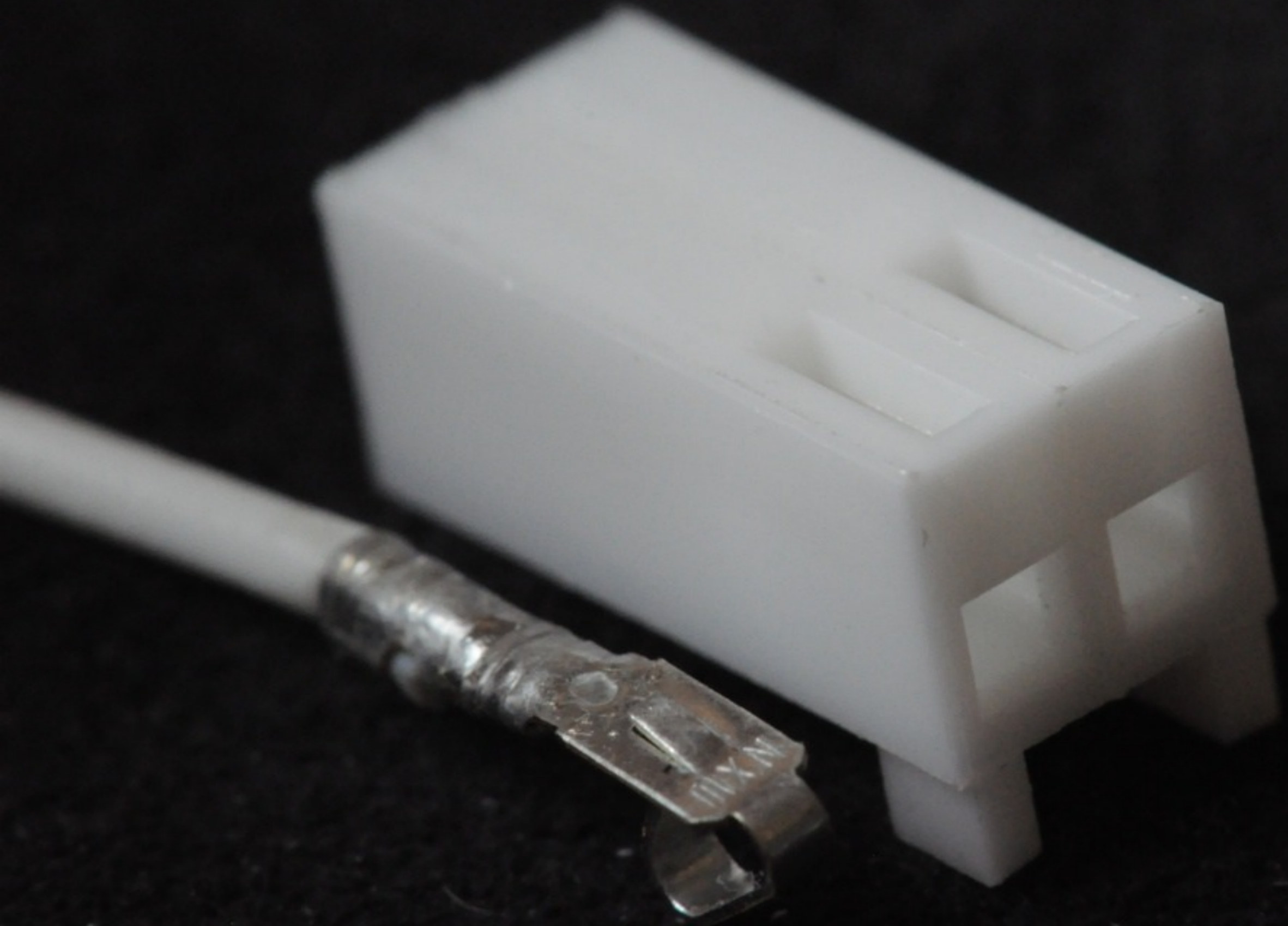








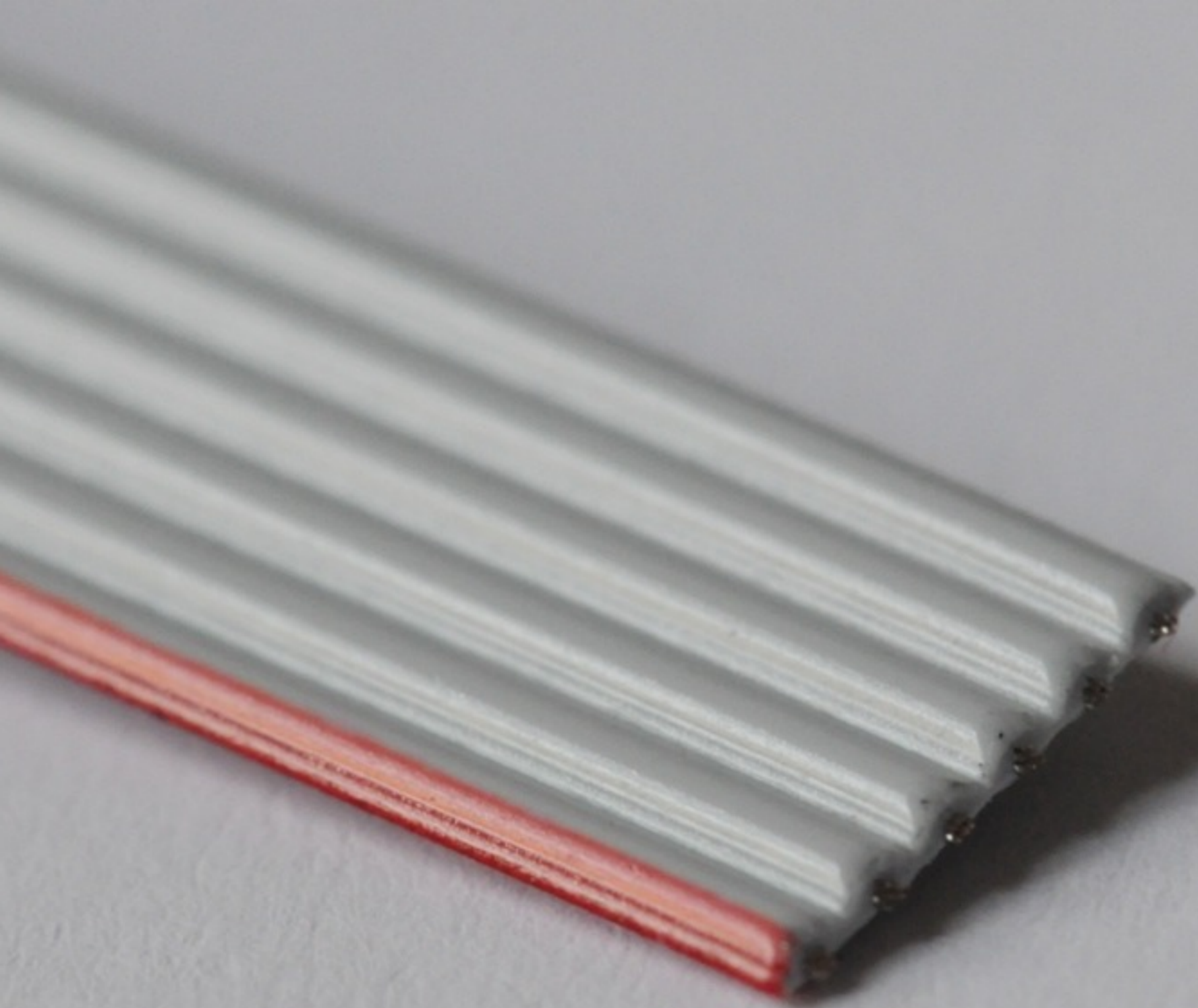




MXN-19

2695





Ribbon Cable

