# WIRE WRAPPING OVERVIEW

Wire Wrapping is a method of making a wire connection by coiling the bare wire around the sharp corners of a terminal under mechanical tension. The technology was developed as an alternative to soldering, which presents various safety and reliability problems in many applications. A principal advantage of wire wrapping is that it provides a high-reliability connection that is also easily removed to correct or modify a wiring layout. Wire wrapping subjects the wire to tremendous tension and compression forces, causing the oxide layer on both wire and terminal to be crushed or sheared, resulting in a clean, oxide-free metal-to-metal contact. A standard wrap is generally used for 24 AWG and larger diameter wires; a modified wrap is typically used for 26 AWG and smaller wires, and is used almost exclusively for 28 to 30 AWG wires. In either case, the wrap style affects only the connection's mechanical stability; both styles provide suitable electrical connections.
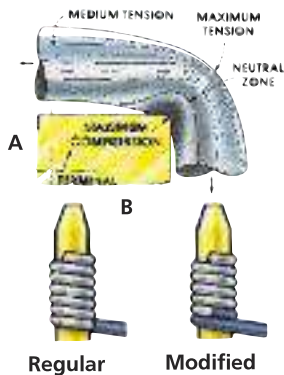
METAL-TO-METAL CONTACT

By bending the wire around the sharp corner of the terminal, the oxide layer on both wire and terminal is crushed or sheared, and a clean, oxide-free metal-to-metal contact is obtained.

TYPES OF WRAP

A "Regular" bit wraps the bare wire around the terminal. A "Modified" bit wraps a portion of insulation around the terminal in addition to the bare wire. This greatly increases the ability to withstand vibration.

STRIP FORCE CHART*

Wire Size			Min. number of turns (Bare Wire)	Min. strip force	
AWG	Dia. inches	Dia. mm		lbs.	gms
16	.051	1.30	4	15	6800
18	.0403	1.00	4	15	6800
20	.032	0.80	5	8	3600
22	.0253	0.65	5	8	3600
24	.0201	0.50	6	7	3200
26	.0159	0.40	7	6	2700
28	.0126	0.32	7	5	2200
30	.0100	0.25	7	3.3	1500

*Conforms to MIL-STD-1130B

HOW TO MAKE WIRE WRAPPED CONNECTIONS

Step 1: Bit, Sleeve and Pre-Stripped Wire

Step 2: Wire Insertion

Step 3: Wire Anchoring

Step 4: Terminal Insertion

Step 5: Finished Connection

SOME HINTS ON MAKING WRAPPED CONNECTIONS

OVERWRAP
Do not press too hard. Let the OK tools do the work. Excessive pressure can lead to overwrapping. Backforce "BF" to prevent overwrapping is available on most power tools and is recommended for use with 26 through 30 AWG wire.

INSUFFICIENT TURNS
It's easy to feed wire into the slot in the OK bit correctly. Be sure the stripped end of the wire is "pushed-in" all the way.

OPEN WRAP & SPIRAL WRAP
Just keep the OK tool on the terminal until the wrap is complete. Early removal can result in spiral and open wraps.

PIGTAIL
Wire wrapping is a precision technique and the wrong bit and sleeve just cannot do the job. Improper selection can cause problems ranging from "Pigtails" to loose wraps.

TERMINAL DIAGONAL CHART

DIMENSION B

In. / mm	.010 0.25	.015 0.38	.020 0.51	.025 0.64	.030 0.76	.035 0.89	.040 1.02	.045 1.14	.050 1.27	.055 1.40	.060 1.52	.065 1.65	.070 1.78	.075 1.91	.080 2.03	.085 2.16	.090 2.29	.095 2.41	.100 2.54
.010 0.25	.014 0.36	.018 0.46	.022 0.56	.027 0.69	.032 0.81	.036 0.91	.041 1.04	.046 1.17	.051 1.30	.056 1.42	.061 1.55	.066 1.68	.071 1.80	.076 1.93	.081 2.06	.086 2.18	.091 2.31	.096 2.44	.101 2.57
.015 0.38	.018 0.46	.021 0.53	.025 0.64	.029 0.74	.033 0.84	.038 0.97	.043 1.09	.047 1.19	.052 1.32	.057 1.45	.062 1.58	.067 1.70	.072 1.83	.077 1.96	.082 2.08	.087 2.21	.092 2.34	.097 2.46	.102 2.59
.020 0.51	.022 0.56	.025 0.64	.028 0.71	.032 0.81	.036 0.91	.040 1.02	.045 1.14	.049 1.25	.053 1.35	.058 1.47	.063 1.60	.068 1.73	.073 1.85	.078 1.98	.083 2.11	.088 2.24	.093 2.36	.098 2.49	.103 2.62
.025 0.64	.027 0.69	.029 0.74	.032 0.81	.035 0.89	.039 0.99	.043 1.09	.047 1.19	.050 1.27	.056 1.42	.060 1.52	.065 1.65	.069 1.75	.074 1.88	.079 2.01	.084 2.13	.089 2.26	.094 2.39	.099 2.52	.104 2.64
.030 0.76	.032 0.81	.033 0.84	.036 0.91	.039 0.99	.042 1.07	.046 1.17	.050 1.27	.054 1.37	.058 1.47	.062 1.58	.067 1.70	.071 1.80	.076 1.93	.080 2.03	.085 2.16	.090 2.29	.095 2.41	.100 2.54	.105 2.67
035 0.89	.036 0.91	.038 0.97	.040 1.02	.043 1.09	.046 1.17	.049 1.25	.052 1.32	.056 1.42	.060 1.52	.064 1.63	.069 1.75	.073 1.85	.078 1.98	.082 2.08	.087 2.21	.091 2.31	.096 2.44	.101 2.57	.106 2.69
.040 1.02	.041 1.04	.043 1.09	.045 1.14	.047 1.19	.050 1.27	.052 1.32	.056 1.42	.060 1.52	.064 1.63	.068 1.73	.072 1.83	.076 1.93	.080 2.03	.084 2.13	.089 2.26	.092 2.34	.097 2.46	.102 2.59	.107 2.72
.045 1.14	.046 1.17	.047 1.19	.049 1.25	.050 1.27	.054 1.37	.056 1.42	.060 1.52	.063 1.60	.067 1.70	.071 1.80	.074 1.88	.078 1.98	.083 2.11	.087 2.21	.091 2.31	.096 2.44	.101 2.57	.105 2.67	.109 2.77
.050 1.27	.051 1.30	.052 1.32	.053 1.35	.056 1.42	.058 1.47	.060 1.52	.064 1.63	.067 1.70	.071 1.80	.074 1.88	.078 1.98	.082 2.08	.086 2.18	.090 2.29	.094 2.39	.098 2.49	.103 2.62	.107 2.72	.111 2.82

DIMENSION A

Example: If "A"=.020". "B"=.060". The terminal diagonal is .063" as shown on chart.

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