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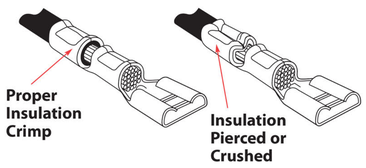
VISUAL INSPECTION OF CRIMPED TERMINALS
INDUSTRIAL

Open Barrel Terminals

ACCEPT **REJECT**



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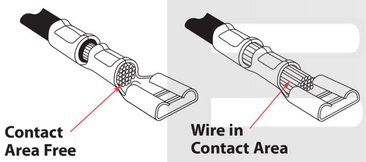

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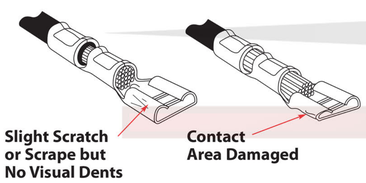

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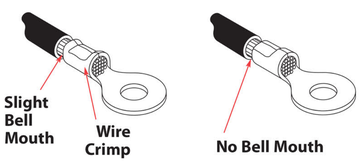

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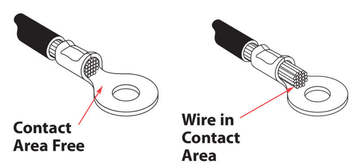

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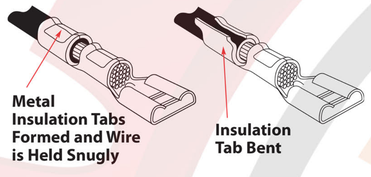

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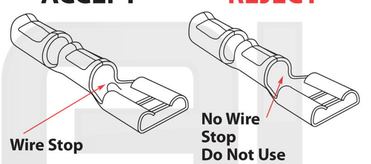

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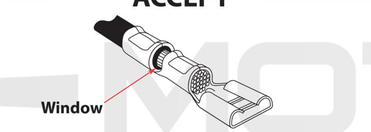

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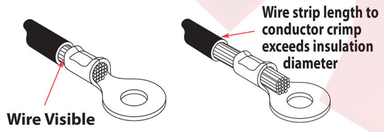
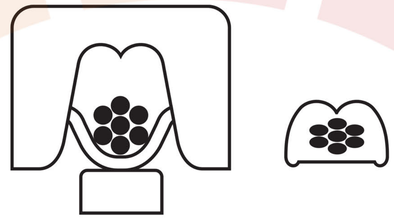
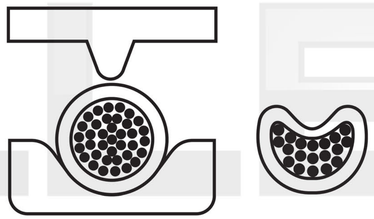


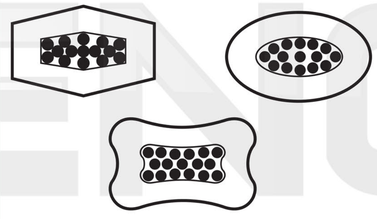
Crimp Types



F CRIMP FOR OPEN BARREL TERMINALS



INDENTOR CRIMP FOR CLOSED BARREL TERMINALS



CONFINED CRIMP FOR CLOSED BARREL TERMINALS

Tensile strength in kilogram-force
Value in newtons in parenthesis

Wire Size	*UL-486A	*UL-486-C	*UL-310	*Military Class 2
26	1.4 (13)	N/A	N/A	3.18 (31.1)
24	2.3 (22)	N/A	N/A	4.54 (44.5)
22	3.6 (36)	3.6 (36)	3.6 (36)	6.80 (66.7)
20	5.9 (58)	4.5 (44)	5.9 (58)	8.62 (84.5)
18	9.1 (89)	4.5 (44)	9.1 (89)	17.2 (169)
16	14 (130)	6.8 (67)	14 (130)	22.7 (222)
14	23 (220)	11 (110)	23 (220)	31.8 (311)
12	32 (310)	16 (160)	32 (310)	49.9 (489)
10	36 (360)	18 (180)	36 (360)	68.0 (667)
8	41 (400)	20 (200)	N/A	102 (1000)
6	45 (440)	23 (220)	N/A	136 (1330)
4	64 (620)	N/A	N/A	181 (1780)
2	82 (800)	N/A	N/A	249 (2450)
1	91 (890)	N/A	N/A	295 (2890)
1/0	110 (1100)	N/A	N/A	318 (3110)
2/0	140 (1300)	N/A	N/A	340 (3340)
3/0	160 (1600)	N/A	N/A	374 (3670)
4/0	200 (2000)	N/A	N/A	397 (3890)
250 MCM	230 (2200)	N/A	N/A	454 (4450)
300 MCM	250 (2400)	N/A	N/A	508 (4980)
350 MCM	270 (2700)	N/A	N/A	510 (5000)

* **UL - 486 A** - Terminals (Copper conductors only)
* **UL - 486 C** - Butt Splices, Parallel Splices, Closed End Connectors and Wire Nuts
* **UL - 310** - Quick Disconnects, Flag and Couplers
* **Military Class 2** - Military Approved Terminals only as listed

AWG-CMA Table

Terminal Size	CMA Range
26-22	202 - 810
24-20	320 - 1,020
22-18	509 - 2,600
22-16	509 - 3,260
16-14	2,050 - 5,180
14-12	3,260 - 8,213
12-10	5,180 - 13,100
8	13,100 - 20,800
6	20,800 - 33,100
4	33,100 - 52,600
2	52,600 - 83,700
1/0	83,700 - 119,500
2/0	119,500 - 150,500
3/0	150,500 - 190,000
4/0	190,000 - 231,000

Technical Wire Information

CMA - CMA is used to denote wire area expressed in Circular Mil. One Circular Mil is equal to cross-sectional area of a wire one Mil in diameter.

MIL - One mil equals .001 inches.
.001 = 1 mil
.030 = 30 mils
.125 = 125 mils

Closed Barrel Terminals

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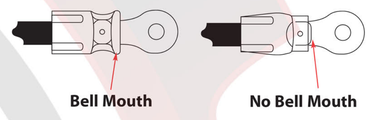

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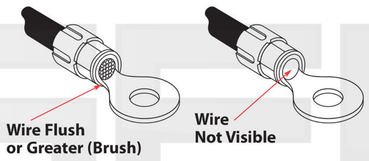

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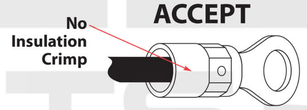

Wire Flush or Greater (Brush) Wire Not Visible

Wire sizes of 8 AWG and larger do not require an insulation crimp.

Wire sizes of 18 through 10 AWG require an insulation crimp and the wire can be held securely in the insulation crimp.

BUTT SPLICES
10 to 18 AWG

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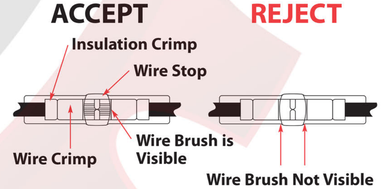

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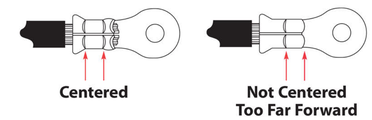

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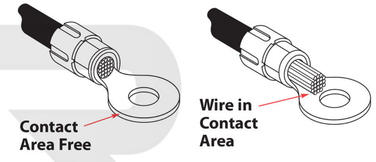

METAL INSULATION CRIMP

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Computation of CMA

D = Diameter in mils
Round Solid Conductor: Change diameter from inches to mils, then multiply the diameter in mils by itself.
CMA = D mils x D mils
Stranded Conductor: Find CMA of a single strand and multiply the result by the total number of strands.
CMA = (D of one strand x D of one strand) x Number of Strands

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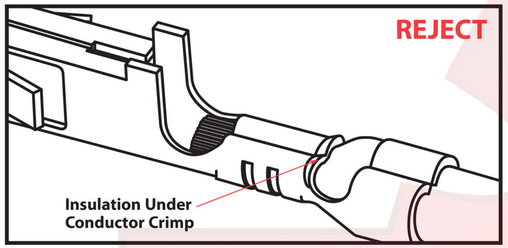
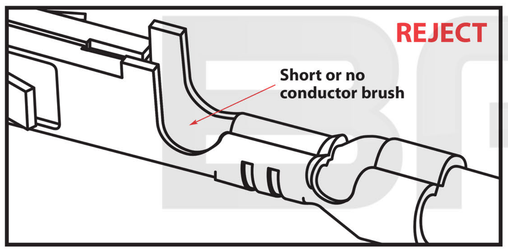
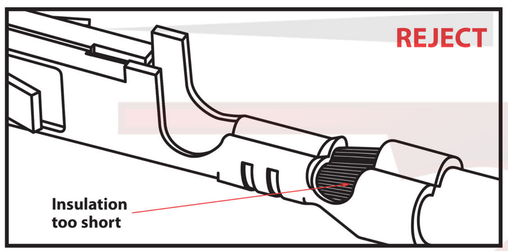
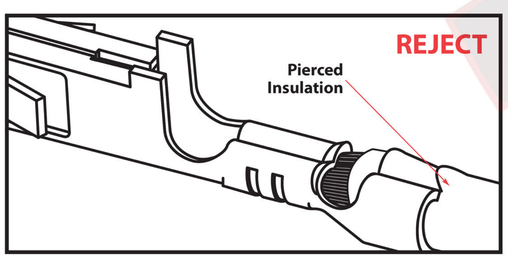
Visual Inspection of Crimped Terminals

Examples

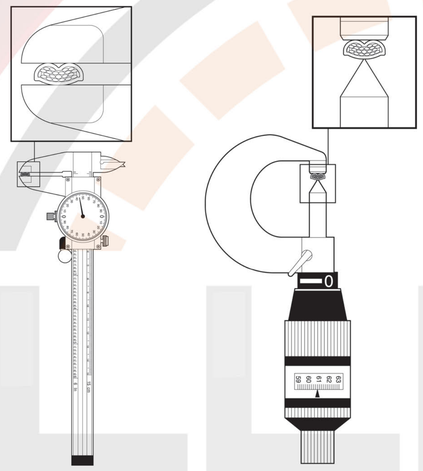




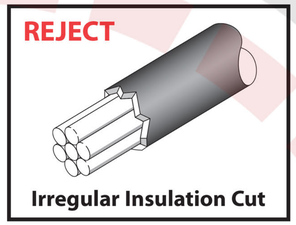


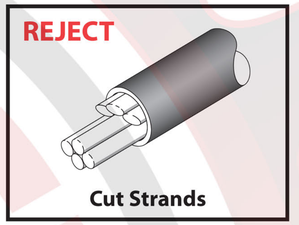


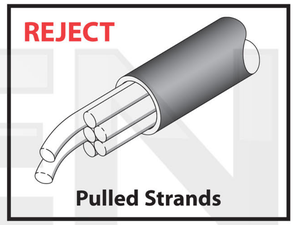
Measurement of Crimp Height

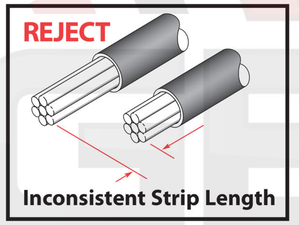


Improper Wire Preparation

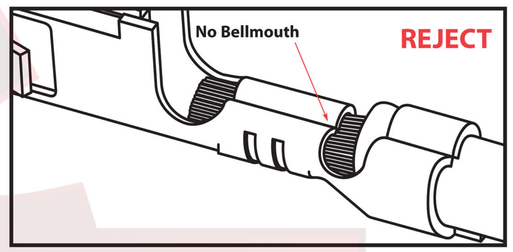


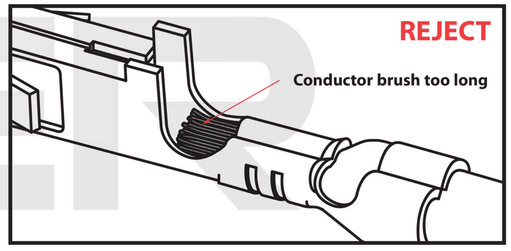


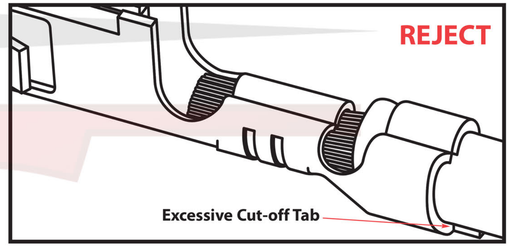


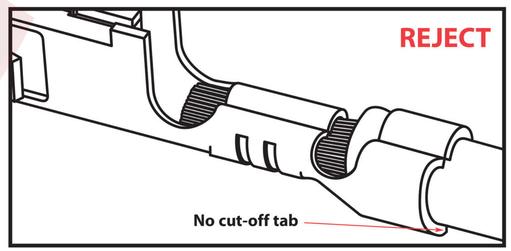


Examples

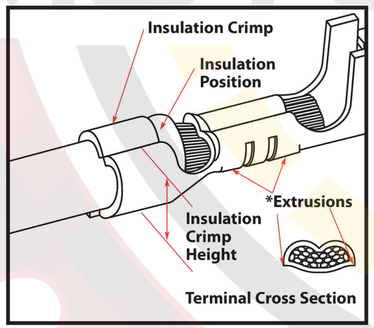




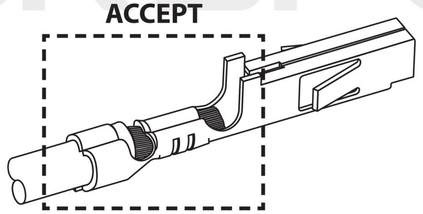


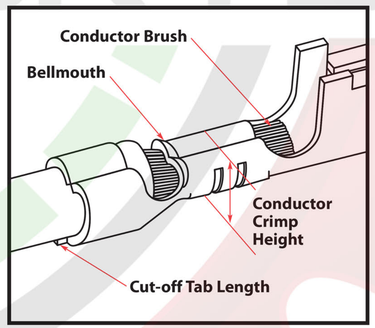


Optimal Crimp



* Extrusions should be minimal or non-existent. When a minimal extrusion exists, it should not exceed below the bottom of the terminal.





Crimp Height Testing

1. Complete tool set-up procedure.
2. Crimp a minimum of 5 samples.
3. Place the flat blade of the crimp micrometer across the center of the dual radii of the conductor crimp.
   Do not take measurement near the conductor bellmouth.
4. Rotate the micrometer dial until the point contacts the bottom most radial surface. If using a caliper, be certain not to measure the extrusion points of the crimp.
5. Record crimp height readings. A minimum of 5 crimp height readings are necessary to confirm each set-up. A minimum of 30 readings are necessary to determine capability.
6. Check crimp height every 250 to 500 parts throughout the run.

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