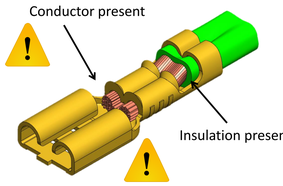
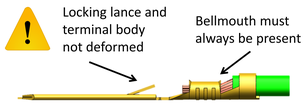
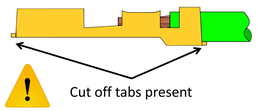
CRIMPING GUIDELINES

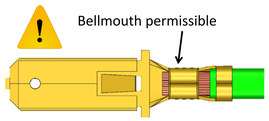
HATKO ELECTRONICS®

CORRECT CRIMP



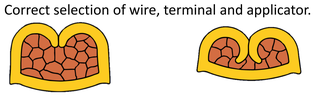






Wire Crimp

Correct selection of wire, terminal and applicator.



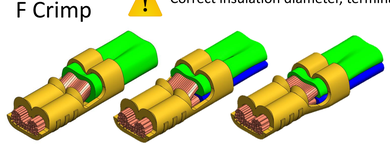
Crimp barrels are closed, barrels support each other.

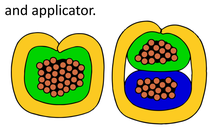
Sufficient gap between barrels and bottom of crimp.

Insulation Crimp

F Crimp

Correct insulation diameter, terminal and applicator.

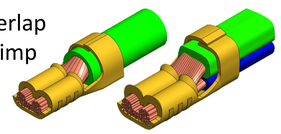


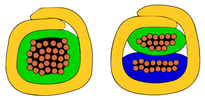


Insulation is securely held. Crimp barrels closed.

The smallest diameter wire should be placed at the bottom for double wire applications .

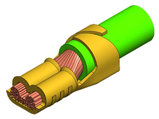
Overlap Crimp

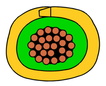




Insulation is securely held. Barrels overlap.

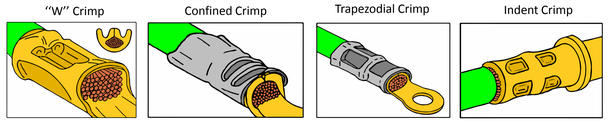
Wrap Overlap Crimp



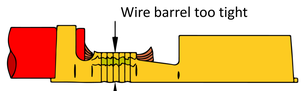


Insulation is securely held. Barrels must pass each other.

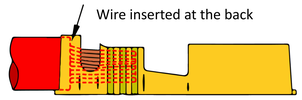
Other Crimp Samples



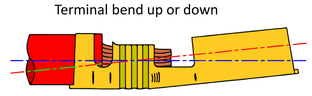
INCORRECT CRIMP



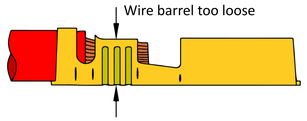
Reason of error : Flash at the bottom of crimp, due to over crimping.
Solution : Correct crimp height setting, check crimper-anvil set.



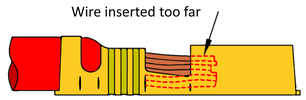
Reason of error : Incorrect cable placement.
Solution : Place cable according to correct crimp sample.



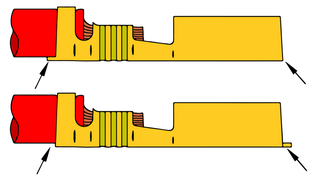
Reason of error : The height of anvil.
Solution : The heights of the crimper and anvil must be the same.



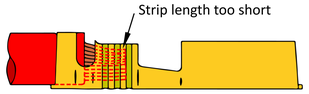
Reason of error : Insufficient wire deformation, showing space.
Solution : Correct crimp height setting, check crimper-anvil set.



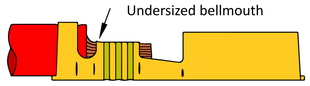
Reason of error : Incorrect cable placement.
Solution : Cable must be placed correctly.



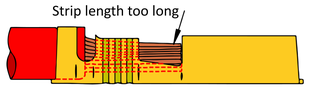
Reason of error : No carrier cut-off puts crimp barrels and terminal mouth out of action. Cut off has to be as the same length as material thickness.
Solution : Check the all crimping tools and pitch of terminal.



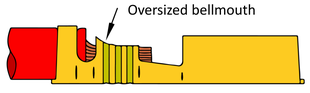
Reason of error : Incorrect cable strip.
Solution : Extend the cable strip length.



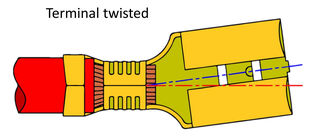
Reason of error : Crimper is damaged, wrongly mounted or incorrect feeding of the terminals.
Solution : Change wire crimper, fix mounting, correct the feeding.



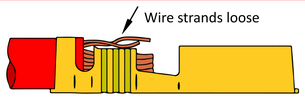
Reason of error : Incorrect cable strip.
Solution : Lower cable strip length.



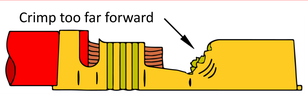
Reason of error : Crimper is damaged, wrongly mounted or incorrect feeding of the terminals.
Solution : Change wire crimper, fix mounting, correct the feeding.



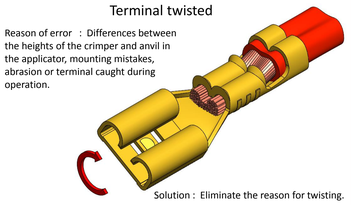
Reason of error : Differences between the heights of the crimper and anvil in the applicator, mounting mistakes, abrasion or terminal caught during operation.
Solution : Eliminate the reason for twisting.



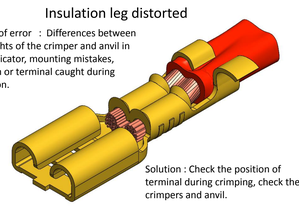
Reason of error : Cable strands loose or crimp not completed.
Solution : Cable strands must be collected before crimp and conductor barrels must be adjusted for secure holding.



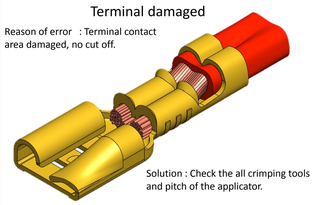
Reason of error : Crimper deforms contact area.
Solution : Check the position of terminal during crimping, check the crimpers and anvil.



Reason of error : Differences between the heights of the crimper and anvil in the applicator, mounting mistakes, abrasion or terminal caught during operation.
Solution : Eliminate the reason for twisting.

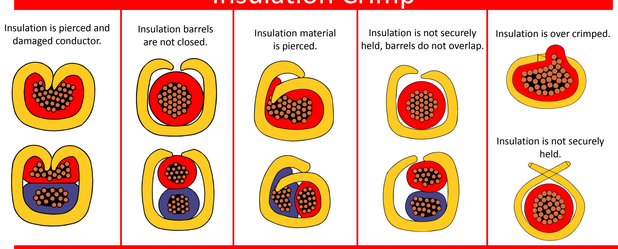


Reason of error : Differences between the heights of the crimper and anvil in the applicator, mounting mistakes, abrasion or terminal caught during operation.
Solution : Check the position of terminal during crimping, check the crimpers and anvil.

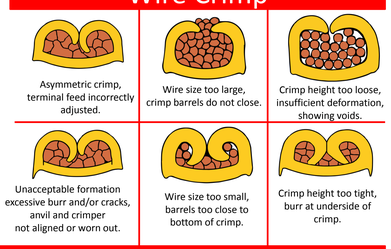


Reason of error : Terminal contact area damaged, no cut off.
Solution : Check the all crimping tools and pitch of the applicator.

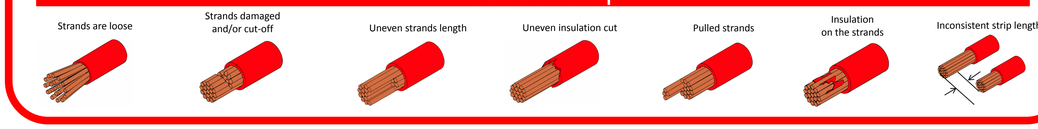
Insulation Crimp



Wire Crimp

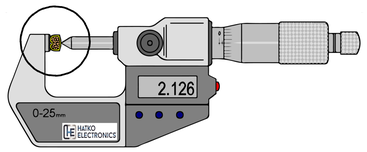


Incorrect Strip



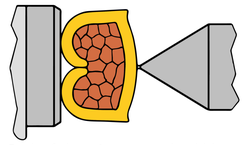
TEST

Wire Crimp



Crimp height measurement

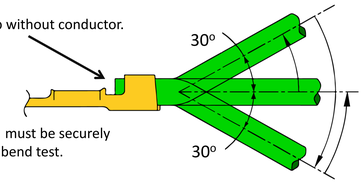
Digital crimp height micrometer (0.001 mm increments).



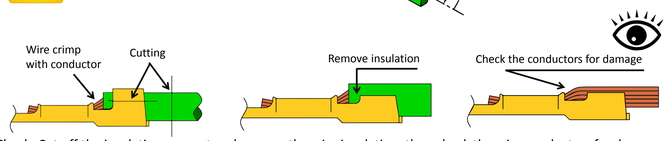
Peak of the micrometer should lean to the back side of the terminal and smooth part to the top of the terminal.

Insulation Crimp

Wire crimp without conductor.

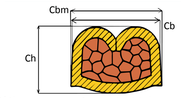


Insulation must be securely held after bend test.



Check: Cut off the insulation support and remove the wire insulation, then check the wire conductors for damage.

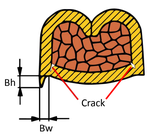
Required Measurements



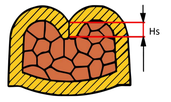
If there are no crimp height tolerances specified in the technical drawing of the terminal, the following tolerances are valid regarding the crimp height (Ch):

Crimp Range (mm²)	Tolerance (mm)
0.13 to 0.5	± 0.03
0.5 to 2.5	± 0.05
> 2.5	± 0.10

Crimp range (Ch), Crimp width (Cb)
Measurable crimp width (Cbm)



Burr height (Bh) must be less than or equal to the contact material thickness (S).
Bh ≤ 1.0 x S
Burr width (Bw), must be less than or equal to ½ of the contact material thickness (S).
Bw ≤ 0.5 x S



Supporting height (Hs) must be;

Wire Size (mm²)	Value
< 1	Hs ≥ 0.5 x S
1 to 6	Hs ≥ 0.7 x S
> 6	Hs ≥ 1 x S

(S): Material thickness

Face and clearance (Fc) must be greater than or equal to 1/10 of the contact material thickness (S).
Fc ≥ 0.1 x S

Distance between crimp face ends (CFE) must equal the distance between the bottom edges of the rolled crimp barrels. This value must be less than or equal ½ of the contact material thickness (S).
CFE = |X1-X2| CFE ≤ 0.5 x S

Supporting angle (Sa) must not deviate more than 30° from the vertical axis.
Sa ≤ 30°

Base thickness (Sb) should be greater than or equal to ¾ of the contact material thickness (S).
Sb ≥ 0.75 x S

Crimp Pull Force Test

Insulation supports should be uncrimped during the crimp pull force test.

If two wires are crimped together, each wire is compared respectively by its own value in the table .

Test values for crimp pull force
(According to EN 61210 & EN 60352)

Wire Size		Pull -Out Force (min)	Wire Size		Pull-Out Force (min)
mm²	AWG	N	mm²	AWG	N
0.05	30	6	1.3	16	135
0.08	28	11	1.5		150
0.12	26	15	2.1	14	200
0.14		18	2.5		230
0.22	24	28	3.3	12	275
0.25		32	4.0		310
0.32	22	40	5.3	10	355
0.50	20	60	6.0		360
0.75		85	8.4	8	370
0.82	18	90	10.0		380
1.00		108			

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