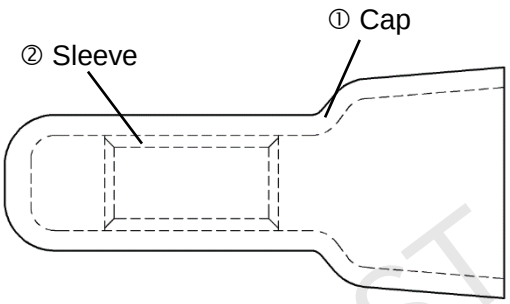
Title of Document:	HANDLING MANUAL	Issue No. CHM-1-108	Rev. 4
Customer:	GENERAL	Issue date: November 6, 1985	
Title subject:	Closed-End Splices	Revision date: June 14, 2022	

This manual describes points to be noted in crimping operation so as to enhance the reliability further and exercise the features.
Please use it with the manual of the applicable tool.

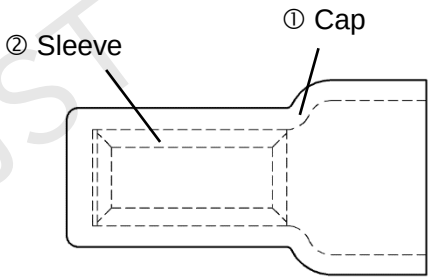
C O N T E N T S

JST	Title subject: Closed-End Splices	No. CHM-1-108

1. Structure and Name



Type I



Type II

2. Product Name, Model Number and Applicable Wires

Type	Model No.	Applicable wire range	Ratchet hand tool Model No.	Pneumatic hand tool	
				Model No.	Dies No.
Type I	CE-100V CE-100	0.5 ~ 1.75 mm^2	YS-2216	YA-1 YAT-1A YAD-1A	AD-301
				YA-2 YAT-2A YAD-2A	AD-801
				YA-4 YAT-4A YAD-4A	AD-931
	CE-230V CE-230	1.0 ~ 3.0 mm^2	YS-1614	YA-1 YAT-1A YAD-1A	AD-302
				YA-2 YAT-2A YAD-2A	AD-802
				YA-4 YAT-4A YAD-4A	AD-932

$Note_1$: Applicable wires are subject to the combination of stranded wires.
$Note_2$: When using such special wires and any others than the applicable ones, contact JST.
$Note_3$: In case of crimping wires with different conductor diameter, the one wire with smaller conductor diameter should be more than a half of the other with larger conductor diameter.

NOTICE
When crimping operation is conducted by using other than JST specified tool, JST cannot guarantee the performance of connector.

Type	Model No.	Applicable wire range	Ratchet hand tool Model No.	Pneumatic hand tool	
				Model No.	Dies No.
Type I	CE-550V CE-550	2.5 ~ 6.0 mm^2	YS-1210	YA-1 YAT-1A YAD-1A	AD-303
				YA-2 YAT-2A YAD-2A	AD-803
				YA-4 YAT-4A YAD-4A	AD-933
	CE-800	4.0 ~ 9.0 mm^2	YS-8S	YA-4 YAT-4A YAD-4A	AD-934
	2-SDW	1.5 ~ 3.0mm^2	YS-1614	YA-1 YAT-1A YAD-1A	AD-302
				YA-2 YAT-2A YAD-2A	AD-802
				YA-4 YAT-4A YAD-4A	AD-932

$Note_4$: Applicable wires are subject to the combination of stranded wires.
$Note_5$: When using such special wires and any others than the applicable ones, contact JST.
$Note_6$: In case of crimping wires with different conductor diameter, the one wire with smaller conductor diameter should be more than a half of the other with larger conductor diameter.

NOTICE
When crimping operation is conducted by using other than JST specified tool, JST cannot guarantee the performance of connector.

Type	Model No.	Applicable wire range	Ratchet hand tool Model No.	Pneumatic hand tool	
				Model No.	Dies No.
Type II	0.5-SD	0.2 ~ 0.6 mm^2	YS-2622	YA-1 YAT-1A YAD-1A	AD-300
	1-SD	1.0 ~ 1.75 mm^2	YS-2216	YA-1 YAT-1A YAD-1A	AD-301
				YA-2 YAT-2A YAD-2A	AD-801
				YA-4 YAT-4A YAD-4A	AD-931
	2-SD	1.0 ~ 2.5 mm^2	YS-1614	YA-1 YAT-1A YAD-1A	AD-302
				YA-2 YAT-2A YAD-2A	AD-802
				YA-4 YAT-4A YAD-4A	AD-932
	5.5-SD	2.0 ~ 5.5 mm^2	YS-1210	YA-1 YAT-1A YAD-1A	AD-303
				YA-2 YAT-2A YAD-2A	AD-803
				YA-4 YAT-4A YAD-4A	AD-933
	8-SD	4.0 ~ 9.0 mm^2	YS-8S	YA-4 YAT-4A YAD-4A	AD-934

$Note_7$: Applicable wires are subject to the combination of stranded wires.
$Note_8$: When using such special wires and any others than the applicable ones, contact JST.
$Note_9$: In case of crimping wires with different conductor diameter, the one wire with smaller conductor diameter should be more than a half of the other with larger conductor diameter.

NOTICE
When crimping operation is conducted by using other than JST specified tool, JST cannot guarantee the performance of connector.

3. Storage

3-1 Storing the connectors

Recommended storage condition: Temperature: 5 – 35 ˚C, Relative humidity 60 % or less
(Under packaging like the state of JST shipment)

Keep off direct sunlight, places exposing to such corrosive gas as industrial gas (generate from a stove and whatnot) and ammonia gas (generate from a toilet and whatnot) and dusty place.

As the polyamide resin, which is the insulator material of terminals and splices, has the feature of absorbing moisture, the coefficient of moisture absorption depends on the storage and the crimping environment, sometimes affecting the crimping performance as below.

- When the moisture absorption of nylon is high under high temperature and high humidity, the elongation of nylon material increases and insufficient crimping is caused so that the connection performance decreases.
- When the moisture absorption of nylon is low under low temperature and dry, the elongation of nylon material decreases, and the insulation tears due to crimping process.

Therefore, when some of the unpacked PA-insulated terminals and splices are not used up, please return them to the original packaging state (seal the bag for the bagged products) not to change the coefficient of the moisture absorbance and keep them.

3-2 Storing the processed products

Not leaving the crimped contact to stand in a place exposed to high humidity and direct sunshine, and not placing them directly on the ground. Keep them in a clean storage room.

4. Preparation for Crimping Operation

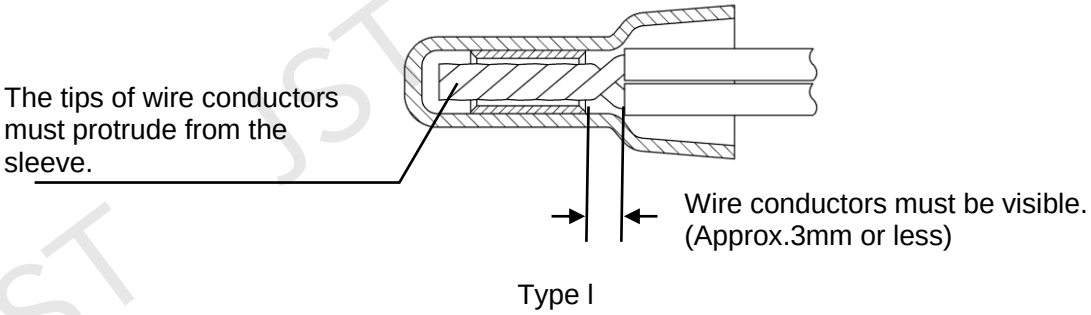
4-1 Checks before crimping

① Before crimping, check that the combination of wires to be used, the splice and the crimping tool is applicable.

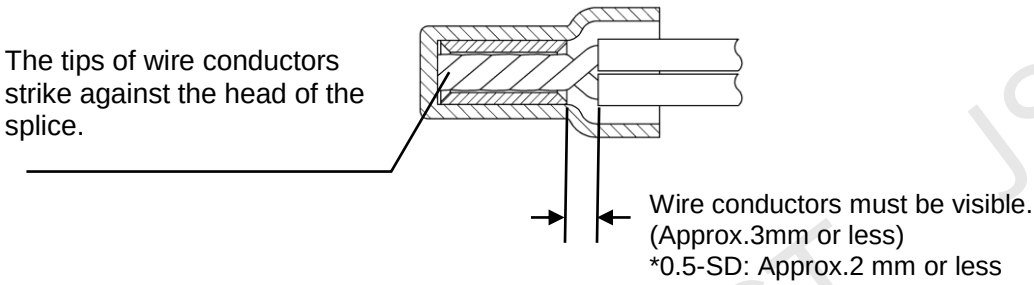
4-2 Wire strip length

① Strip wires with care not to damage or cut wire conductors.

② Wire strip length depends on wire size and the quantity.
Decide the best wire strip length according to the processing condition so that the combining state of the splice and wires becomes as shown below.
The reference value of the wire strip length shows in Table-1.

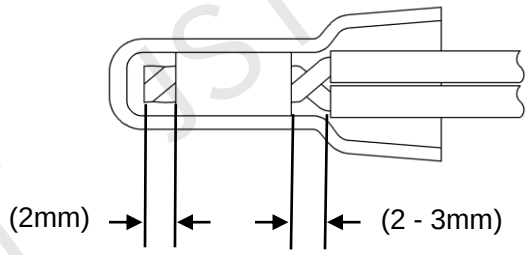
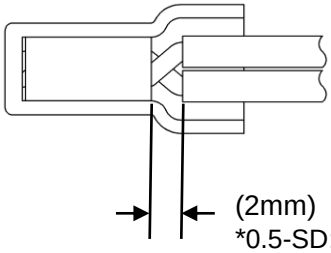


Type I



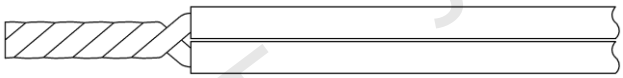
Type II

Table-1: Wire strip length (Reference value)

Model No.	Crimping methods	Strip length
CE-100V CE-100		(12mm)
CE-230V CE-230		(12mm)
CE-550V CE-550		(14mm)
CE-800		(15mm)
2-SDW		(10mm)
0.5-SD		(6mm)
1-SD		(10mm)
2-SD		(10mm)
5.5-SD		(11mm)
8-SD		(12mm)

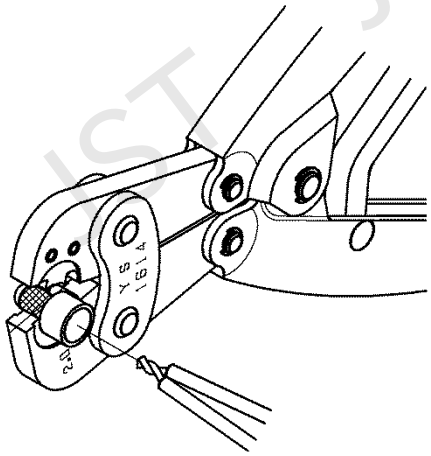
5. Crimping Operation

Set the terminal to the tool so that the sleeve center of the splice comes to the die center of the tool.
In case of the tool with the stopper (a metal for positioning the splice), insert the splice until it touches the stopper.
When inserting a wire into the splice, strand wire conductors gently and trim the tips if necessary.



Example of twisting wires

5-1 Hand tool



The hand tool has the ratchet which controls the crimping work.
This brings out the perfect crimping.

5-2 Pneumatic crimping tool

① Set air pressure to 5 kgf/cm^2 ~ 6 kgf/cm^2

② Check that specified air pressure is kept per 100 pcs. of splice during crimping operation.

③ Check that the upper and lower dies touch in crimping.

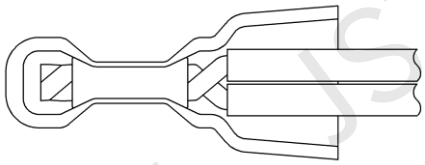
④ In crimping, touch dies for 1 or more seconds.

6. Checks after Crimping

6-1 Appearance

After crimping the splice, check the finishing as below.
Conduct visual inspection of the appearance from wire insertion side and check the tip where the insulation of sampled specimens has been cut.

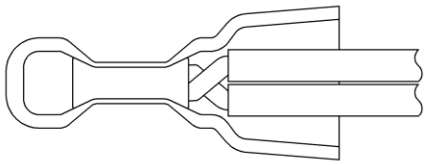
Example of proper crimping



- **Type I: Protrude wire conductors from the sleeve**
  Type II: Insert wire conductors up to the sleeve end face
- **Sleeve free from bites of wire insulation and be visible wire conductors from the rear end**
- **Properly push the center of the sleeve.**

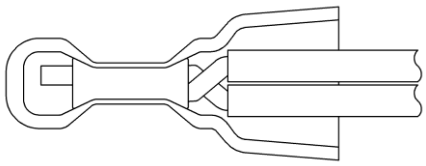
Example of bad crimping and the cause

① Wires do not come out of the sleeve front end.



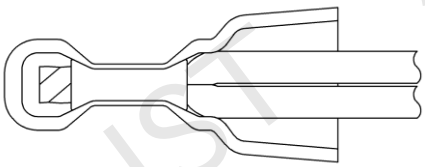
Cause
- Insufficient wire stripping
- Short wire insertion
- Wire deviation in crimping

② Some of wires do not come out of the sleeve front end.



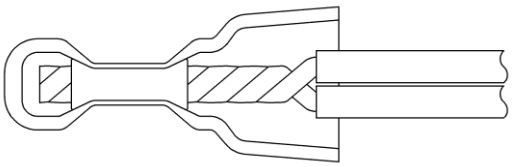
Cause
- Uneven wire twisting
- Unbalanced wire stripping

③ Wire insulation is bitten in the sleeve.



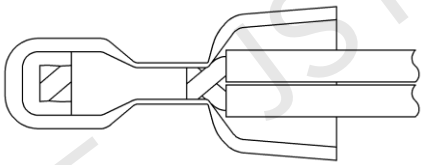
Cause
- Excessive wire insertion
- Wire deviation in crimping
- Poor wire stripping

④ Wire insulation is bitten in the sleeve.



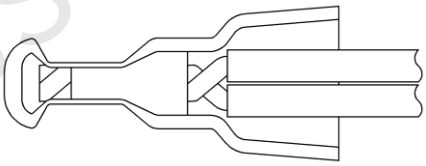
Causes
・Excessive wire stripping

⑤ Improper crimping position



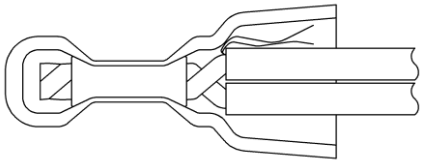
Causes
・Improper crimping position setting
・Looseness on tool stopper
(for the tool with the stopper)

Crimping toward the rear side



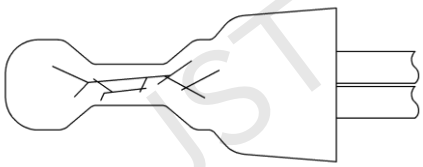
Crimping toward the front side

⑥ Stray wires



Causes
・Insufficient stranding of wire conductors
・Improper wire insertion in the splice

⑦ Cracks on wire insulation



Causes
・Bad storage condition

6-2 Tensile strength at crimped part

Measure the tensile strength at the crimped part and check whether the tensile strength satisfies the specified valued stated in Table-2.

Test method: As shown below, apply to the specimen the tensile strength larger than the value shown in table 2 to make sure that there is no slippage at the crimping connection part between the specimen and a wire and there are no troubles, such as breakage and wire disconnection, in using.
Apply the tension to the center of a wire as much as possible.
(Test speed: 25 mm/min.)

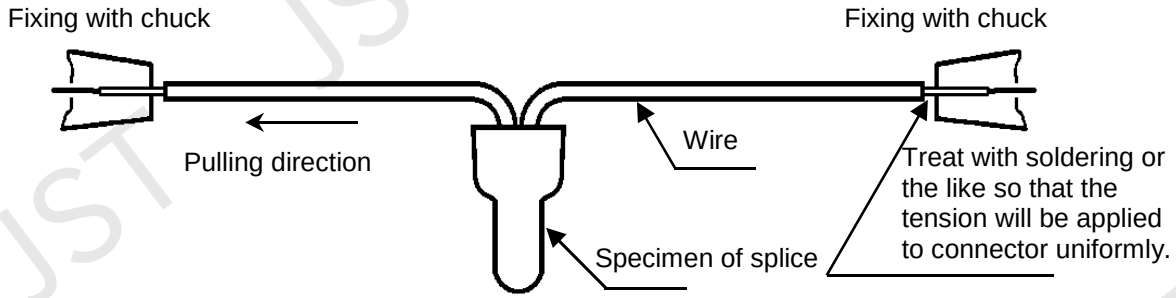


Table-2: Requirement of tensile strength per each wire size

Closed end splice (Type I)

Wire size	Requirement of tensile strength
0.3 mm^2	40 N min.
0.5 mm^2	70 N min.
0.75 mm^2	100 N min.
1.25 mm^2	170 N min.
2.0 mm^2	250 N min.
3.5 mm^2	450 N min.

Closed end splice (Type II)

Wire size	Requirement of tensile strength
AWG #26 (0.13 mm^2)	10 N min.
AWG #24 (0.2 mm^2)	20 N min.
AWG #22 (0.3 mm^2)	36 N min.
0.5 mm^2	70 N min.
0.75 mm^2	100 N min.
1.25 mm^2	170 N min.
2.0 mm^2	250 N min.
3.5 mm^2	450 N min.