

# Wiring Harness

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**KES**

KES D-C601

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Quoted Standards

## 1. Scope of Application

This standard specifies the wiring harness for automobiles (hereinafter referred to as harness).

## 2. Purpose

This standard aims at securing proper quality by standardizing specification.

Remark: This standard shall accompany specification drawing to inform requirements.

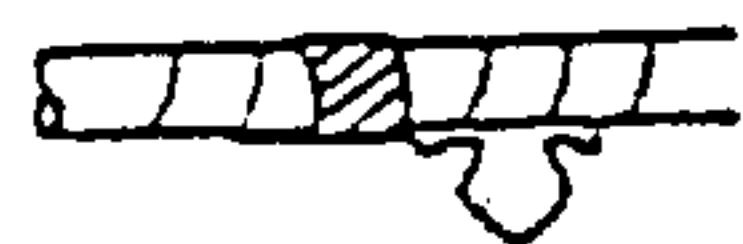
## 3. Report of Evaluation Result

Quality evaluation result at each stage from development to mass production shall be submitted to Kia in accordance with the direction in the Appendix.

## 4. Definition of Terminology

### (1) Clip with one side tied

This clip fixes harness using tape, band, etc. only at one side of clip.



### (2) Clip with both sides tied

This clip fixes harness using tape, band, etc. at both sides of clip.



(3) Holding Strength

(a) For clip

The strength applied to a tape or a band tying the wire harness and clips when it breaks or when the clip slip out of it.

(b) For Grommet

The strength applied to a tape tying the wire harness and grommet when it slips out of grommet.

(4) Thickness of vinyl tape

The thickness tolerance shall be in accordance with KES D-C603(Adhesive Vinyl Tape).

(5) Under-taping

Preliminarily taping harness before taping clip and harness to increase fixation strength of clip

(6) Splice

Jointing two or more cables electrically or physically by crimping, etc.

**5. Specification Indicated in Drawing**

(1) External dimension and dimensional tolerance (In some cases, dimensional tolerance may be omitted.)

(2) Taping method (half lap taping, rough taping, partial taping, water-proof taping, indication of water-proof taping)

(3) Used parts (connector, assembled clips, mold protector, tube, protector, bubble urethane, rubber caps, etc.)

(4) Terminal arrangement

(5) Capacity of fuse and circuit brake

(6) Type of applicable cables, diameter and color of cables

(7) Treatment procedure on the outside of harness (branching angle, folding, splice treatment, fixing method of rubber cap to LA terminal, etc.)

(8) Treatment procedure on the end of shielding wire

(9) Location of splice at particular area

(10) Indication of safety tap for the prevention of lead terminal bolt loosening when necessary

(11) Necessity or unnecessity of water-proof taping when water-proof boot is to be fixed

(Not necessary for the prevention of noise)

(12) Special fixing method of assembled clips

(13) Projection of cables from mold protector (only when projection is probable)

(14) Type of terminals having necessity for evaluation of clamped terminal

Harness drawing shall be in accordance with [KES A-B007(Drawing Standard of Wire Harness)]. The indication of connector shall conform to [KES A-D001(Connector Indication Symbol)].

6. Evaluation Standard

Evaluation standard for harness shall conform to Table 1.

Remark 1. Reading example of evaluation item and method in Table 1 shall conform to the following:

| Evaluation Item |                      | Evaluation Method                                                    |                               |
|-----------------|----------------------|----------------------------------------------------------------------|-------------------------------|
| Durability      | Vibration Resistance | 1st evaluation                                                       | 7.5.1 — 1st evaluation method |
|                 | Slide                | 2nd evaluation evaluation item after vibraion resistance evaluation) | 7.3.1 — 2nd evaluation method |
|                 | Noise                | 3rd evaluation (evaluation item after operability evaluation)        | 7.3.7 — 3rd evaluation method |

Remark 2. Quality rank shall be marked by A, AR, B or C. This definition shall be in accordance with KES Q-A002 (Determination and Procedure of Quality Ranking).

3. Even though table 1 does not contain evaluation item on parts related to harness, each part shall satisfy the following standards:

KES D-C602 Connector

KES D-C603 Vinyl Adhesive Tape

KES D-C604 Self-scffing Silicon Rubber Tape

KES D-C606 Urethane Tape(Foamy sheet)

KES D-C607 Paper Adhesive tape

KES D-C607 Cotton Tape

KES D-C608 Corrugated Tube

KES D-C609 Vinyl Tube

KES D-C610 Silicon Varnished Glass Tube

KES D-C611 Vinyl Film(Protector vinyl)

KES D-C612 Heat Shrinkable Tube

KES D-C613 Zipper Tube

KES D-C614 Non-irradiateed Heat Resistance

KES D-C615 Twisted Pair Line

KES D-C616 Shielding Line

KES D-C617 PP Rod

KES D-C618 Press Type Battery Terminal

KES D-C619 Resin Clip Protector

KES E-G003 Protector

KES E-K001 Blade Fuse

Table 1

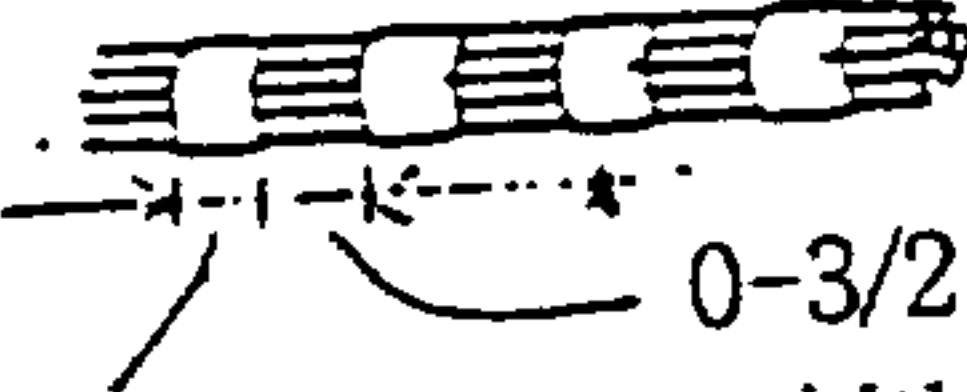
| Evaluation Item     |                 | Evaluation Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Quality Rank | Evaluation Method |
|---------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|
| External Appearance | Half Lap Taping | <p>(1) Cables should be bound securely.</p>  <p>(2) About 1/2 of tape width should be overlapped.</p> <p>(3) Cables at the center should not be exposed.</p> <p>(4) Adhesive part of the tape should not be exposed.</p> <p>(Excluding parts where shape is changed, such as the top of the protector, branching point, etc.)</p> <p>(5) Ends of the tape shall not be peeled off.</p>                                                               | B            | 7.2.1             |
|                     | Random Taping   | <p>(1) Cables should be bound securely.</p>  <p>(2) Pitch between each tape should be 0 to 3/2 times as long as the tape width.</p>  <p>(3) Adhesive part of the tape should not be exposed.</p> <p>(Excluding parts where shape is changed, such as the top of the protector, branching area, etc.)</p> <p>(4) Ends of the tape should not be peeled off.</p> | B            | 7.2.2             |

Table 1 (Continued)

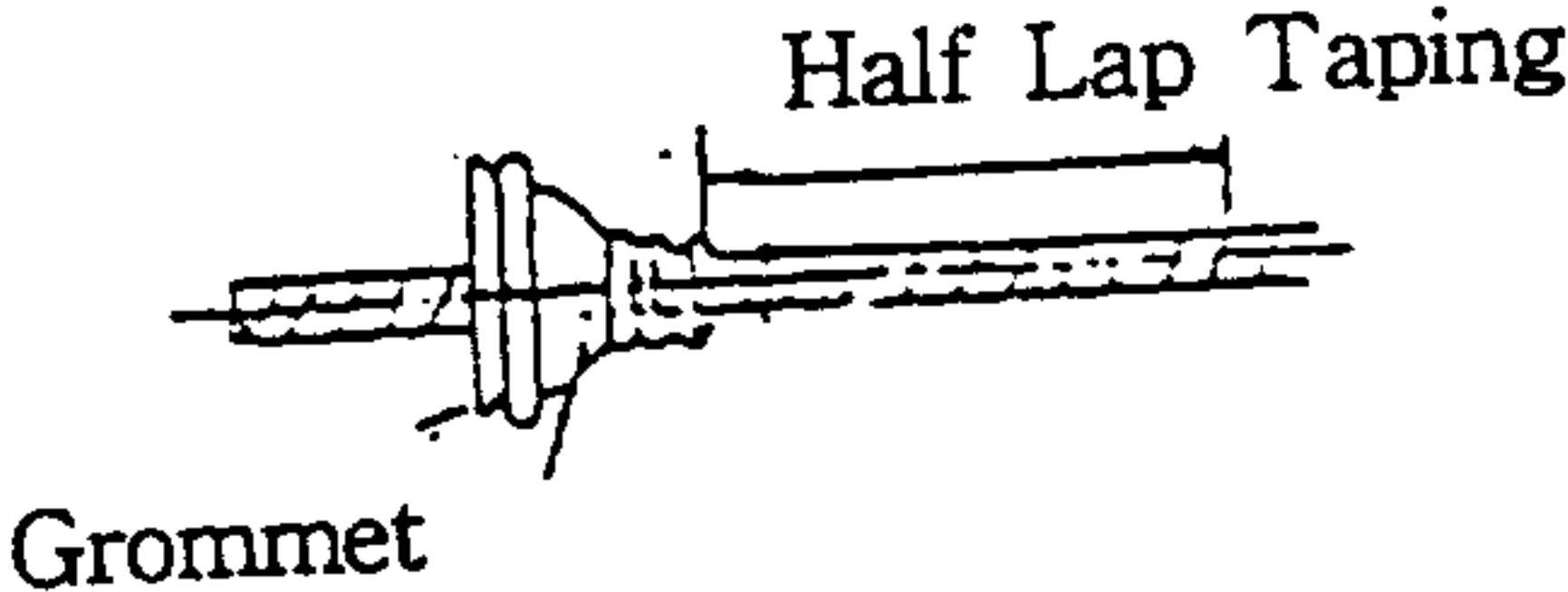
| Evaluation Item     |                    | Evaluation Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Quality Rank | Evaluation Method |
|---------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|
| External Appearance | Partial Taping     | <p>(1) Cables should be bound securely.</p>  <p>(2) Overlap the tape 2-5 times. If it is difficult to judge, compare it with the designated sample.</p>                                                                                                                                                                                                                                                                                                                                                                                                                            | B            | Visual Inspection |
|                     | Water-Proof Taping | <p>(1) Cables should be bound securely.</p> <p>(2) Cables at the center should not be exposed.</p> <p>(3) Adhesive part of the tape should not be exposed.</p> <p>(Excluding parts where shape is changed, such as the top of the protector, branching area, etc.)</p> <p>(4) End of the tape should not be peeled off.</p> <p>(5) Wind the tape trebly in the direction indicated in the drawing.</p>  <p>Triple winding</p> <p>(a) Without grommet, wind undertaping lapping by half.</p> <p>(b) Then, wind the tape twice lapping by half around the grommet and harness.</p> | B            | 7.2.3             |

Table 1 (Continued)

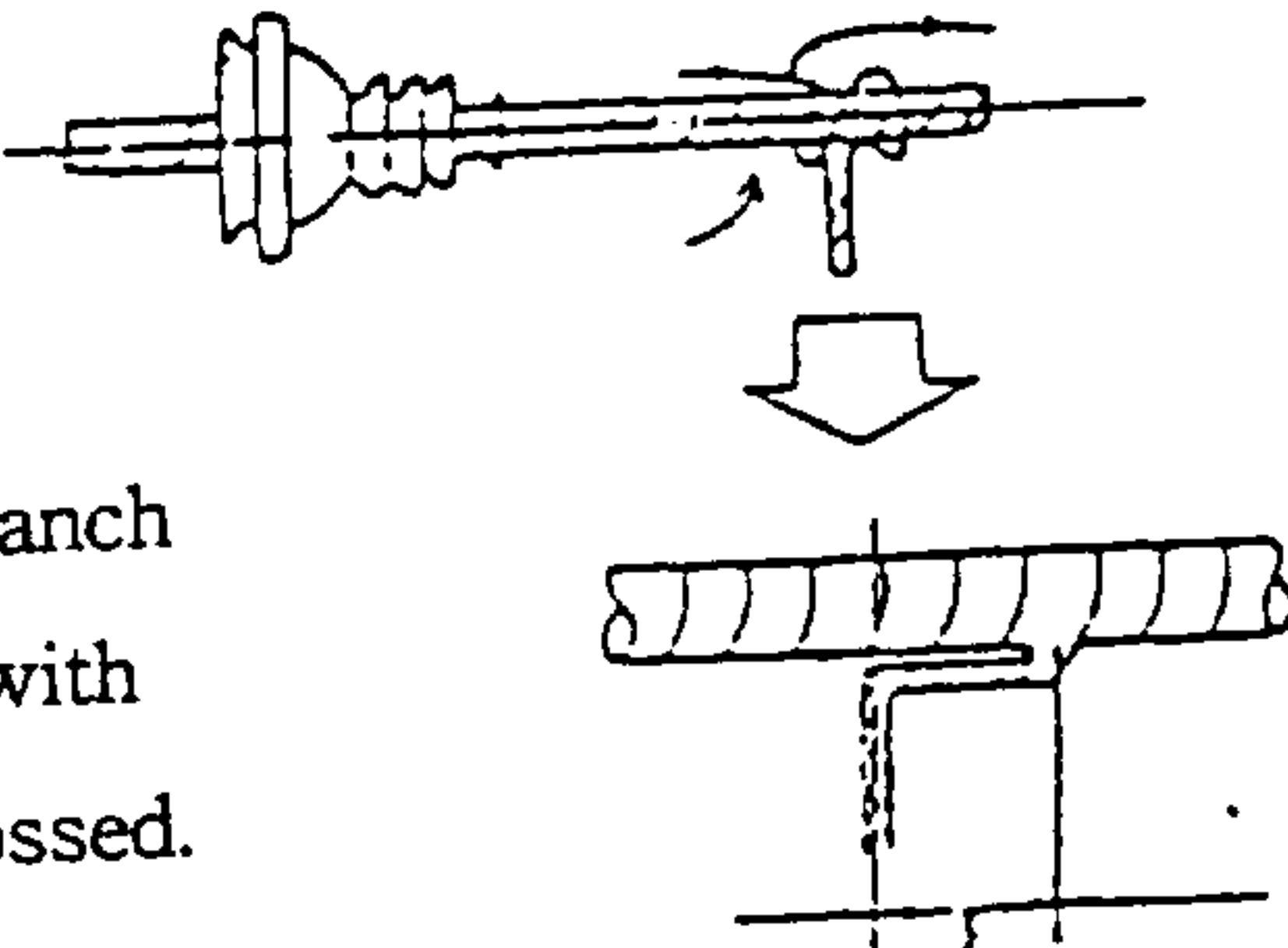
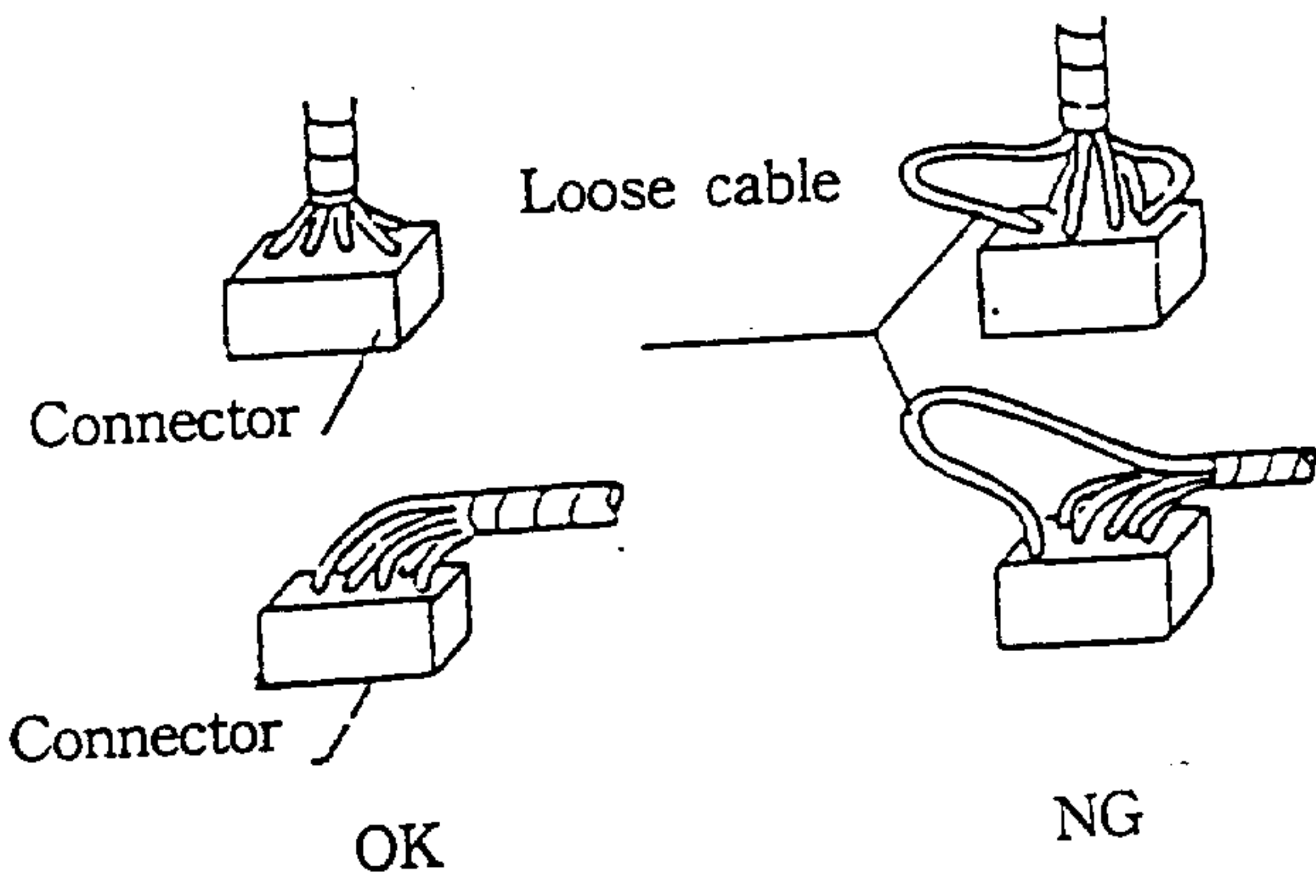
| Evaluation Item     |                    | Evaluation Basis                                                                                                                                                                                                                                                                                   | Quality Rank | Evaluation Method |
|---------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|
| External Appearance | Water-Proof Taping | <p>(6) As a rule, branch point should be bent back and taped. Cables should not be seen at the branch point.</p>  <p>Tape the branch connection with the tape crossed.</p> <p>Turning-back taping treatment</p> | B            | 7.2.3             |
|                     | Connector Area     | <p>(1) There should be no loose cable.</p>  <p>If it is difficult to judge, confirm whether it meets the standard for limit sample.</p>                                                                        | B            | Visual Inspection |
|                     | External Dimension | <p>(1) It should meet the specification given in the drawing.</p> <p>(2) In case there is no dimensional tolerance in the specification drawing, the following dimensional tolerance should be satisfied.</p>                                                                                      | B            | 7.2.1             |

Table1(Continued)

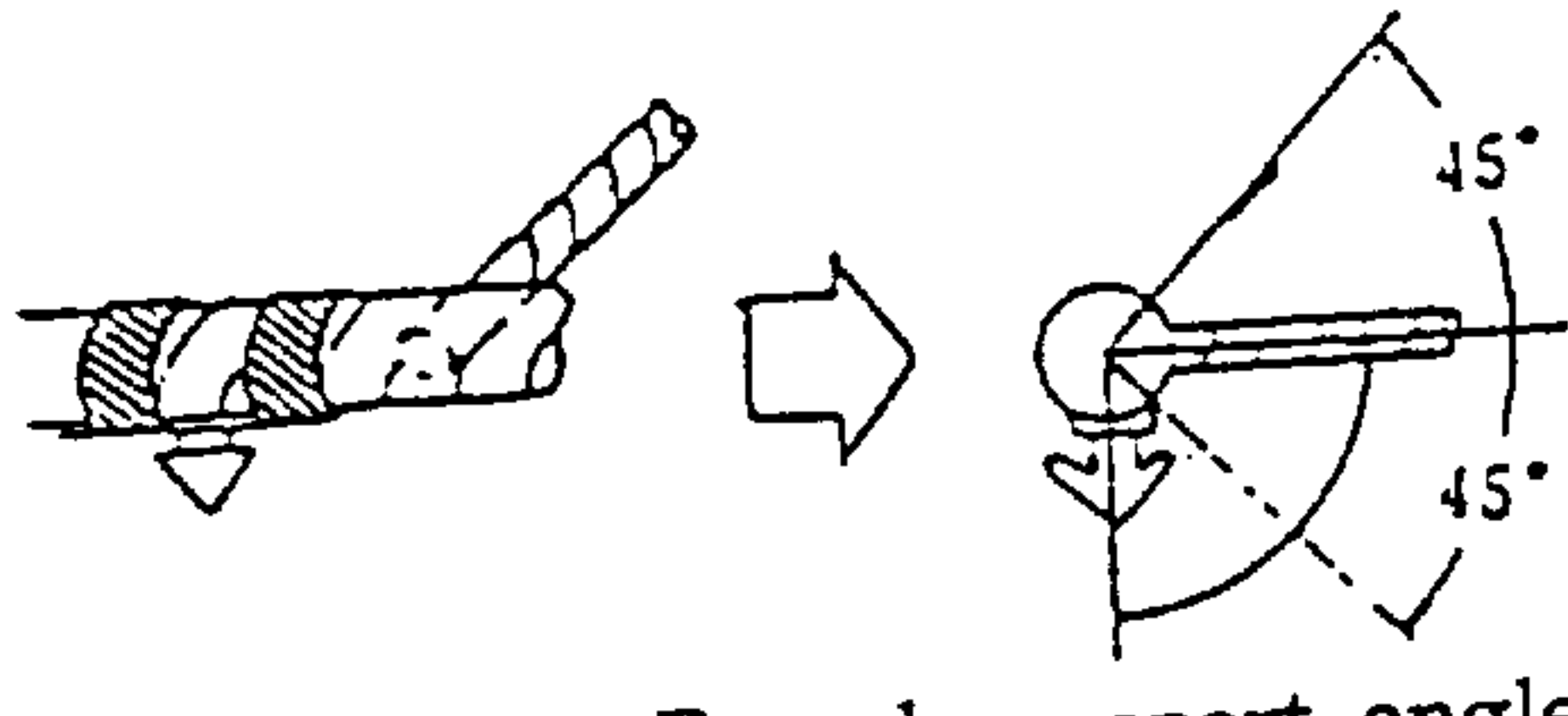
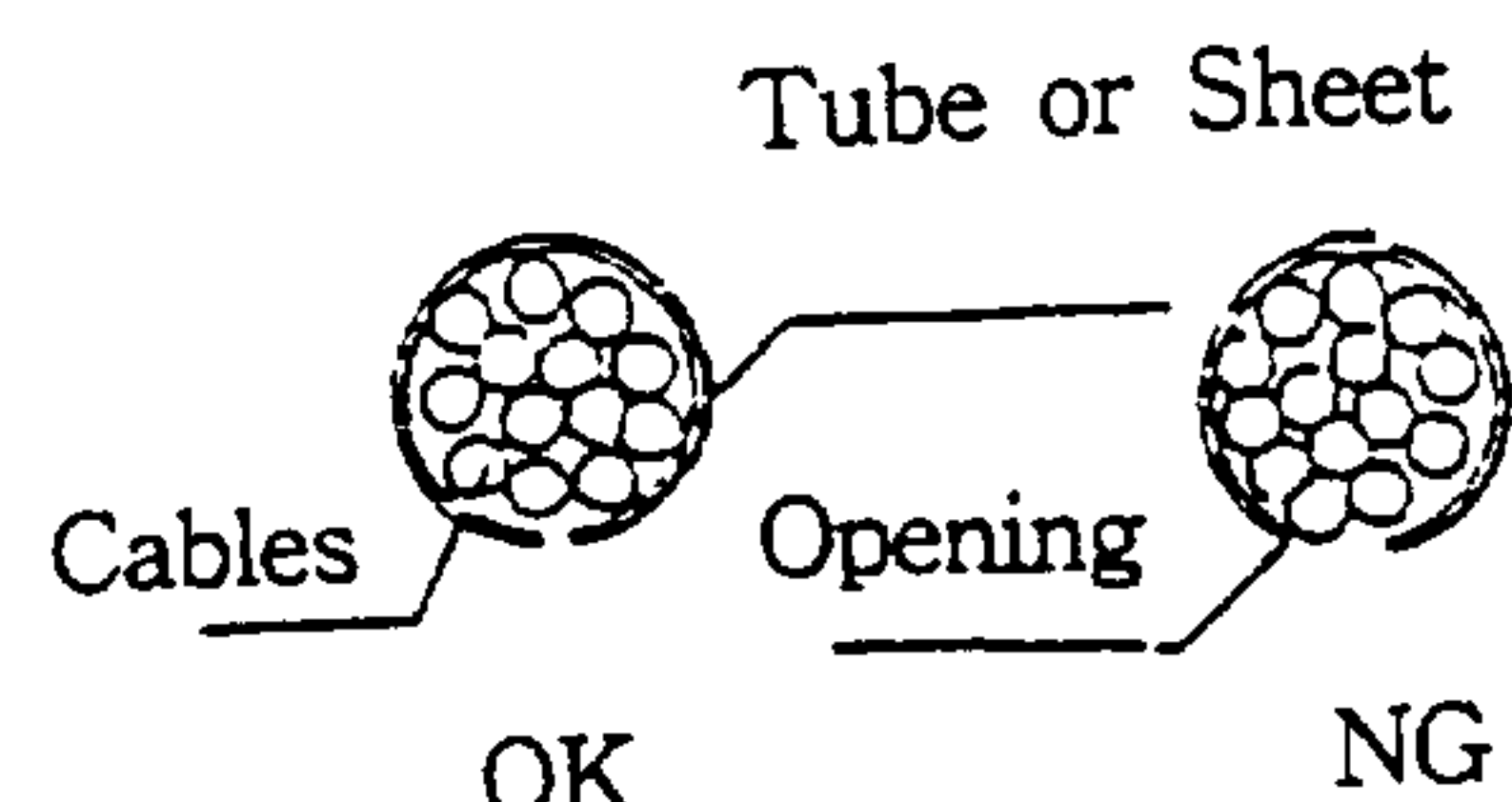
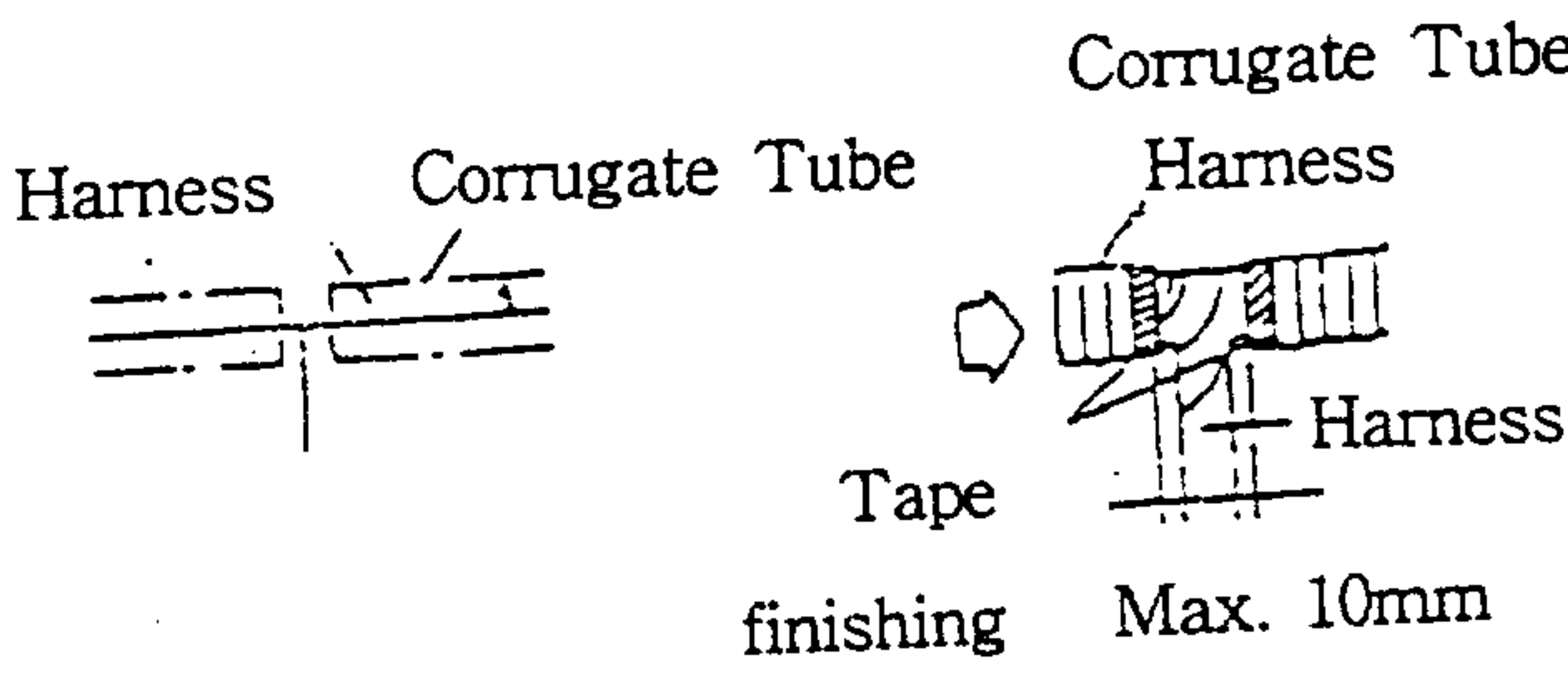
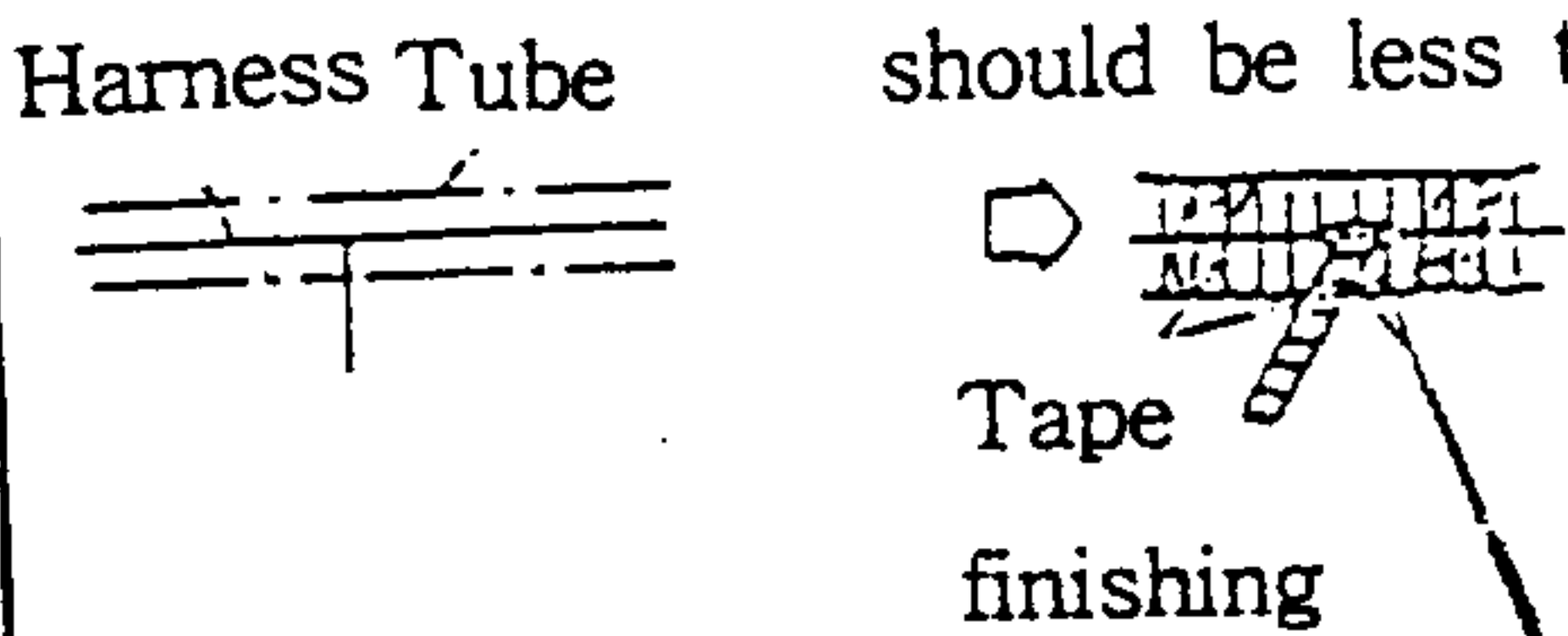
| Evaluation Item     |                         | Evaluation Standard                                                                                                                                                                                                                                                                                                                                                                                         | Quality Rank            | Evaluation Method          |               |        |         |         |          |         |            |         |        |         |   |       |
|---------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------|---------------|--------|---------|---------|----------|---------|------------|---------|--------|---------|---|-------|
| External Appearance | External Dimension      | <table><tr><th>External Dimension (mm)</th><th>Dimensional Tolerance (mm)</th></tr><tr><td>Less than 200</td><td>+10~-5</td></tr><tr><td>201-500</td><td>+20~-10</td></tr><tr><td>501-1000</td><td>+30~-15</td></tr><tr><td>10001-3000</td><td>+40~-20</td></tr><tr><td>30001-</td><td>+50~-25</td></tr></table>                                                                                            | External Dimension (mm) | Dimensional Tolerance (mm) | Less than 200 | +10~-5 | 201-500 | +20~-10 | 501-1000 | +30~-15 | 10001-3000 | +40~-20 | 30001- | +50~-25 | B | 7.2.4 |
|                     | External Dimension (mm) | Dimensional Tolerance (mm)                                                                                                                                                                                                                                                                                                                                                                                  |                         |                            |               |        |         |         |          |         |            |         |        |         |   |       |
|                     | Less than 200           | +10~-5                                                                                                                                                                                                                                                                                                                                                                                                      |                         |                            |               |        |         |         |          |         |            |         |        |         |   |       |
| 201-500             | +20~-10                 |                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                            |               |        |         |         |          |         |            |         |        |         |   |       |
| 501-1000            | +30~-15                 |                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                            |               |        |         |         |          |         |            |         |        |         |   |       |
| 10001-3000          | +40~-20                 |                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                            |               |        |         |         |          |         |            |         |        |         |   |       |
| 30001-              | +50~-25                 |                                                                                                                                                                                                                                                                                                                                                                                                             |                         |                            |               |        |         |         |          |         |            |         |        |         |   |       |
|                     | Branch Direction        | <p>The harness having branching angle indication in the specification drawing should be possible to move easily within <math>\pm 45^\circ</math> range.</p>  <p>Branch support angle</p> <p>If there is no indication in the specification drawing for branching angle, the angle should be <math>90^\circ</math> .</p> | B                       | 7.2.5                      |               |        |         |         |          |         |            |         |        |         |   |       |
|                     | Fixing of Tube or Sheet | <p>(1) Tube or sheet should not be opened.</p>  <p>Tube or Sheet</p> <p>Cables</p> <p>Opening</p> <p>OK</p> <p>NG</p>                                                                                                                                                                                                   | B                       | 7.2.6                      |               |        |         |         |          |         |            |         |        |         |   |       |

Table 1 (Continued)

| Evaluation Item     | Evaluation Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Quality Rank | Evaluation Method |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|
| External Appearance | <p data-bbox="661 489 1472 608">(a) Wind tape on tube or sheet within one and a half winds.</p> <p data-bbox="661 608 1472 816">(b) In case there is no direction specified in the specification drawing, the thickness of vinyl tube should be 0.5mm.</p> <p data-bbox="619 816 1060 875">(2) No projection of cables</p> <p data-bbox="619 875 1428 994">(3) Provide taping treatment such that the fixed location is not overlapped.</p> <p data-bbox="682 994 1312 1113">(a) When the branch point has cables disconnected:</p> <div data-bbox="682 1127 1480 1469">  </div> <p data-bbox="640 1617 1501 1706">(b) If the branch point has no disconnected cables:</p> <p data-bbox="787 1825 1522 2018">Distance between cross-section of Corrugate corrugate and branch harness should be less than 10mm.</p> <div data-bbox="640 1973 1228 2211">  </div> <p data-bbox="955 2211 1512 2344">Branching should be made at the corrugate tube cut-off section.</p> |              |                   |