

Wiring Harness

KES D – C601D

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1. Scope of Application

This standard shall be applicable to Wiring Harness (hereinafter, Harness) for automobiles.

2. Purpose

The purpose of this standard is to obtain appropriate quality by standardizing specification.

Remarks: This standard conveys the requirement along with specification drawing

3. Report of Evaluation Result

Submit the report of quality evaluation results per each phase from development to mass production according to appendix.

4. Meaning of Terminology

(1) Clip

Clip to be fixed by tape or band on one side of harness



(2) Clip

Clip to be fixed by tape or band on both side of harness

(3) Band Clip



Clip to be fixed by one body tape on harness



(4) Holding Force

(a) In case of clip

Force when tape or band fixing wiring harness and clip is cut down or when clip is separated from tape or band.

(b) In case of grommet

Force when tape fixing wiring harness and grommet is separated from grommet.

(5) Thickness of Vinyl Tape

Thickness tolerance shall be in accordance with KES D-C603.

(6) Foundation Tape

To increase fixing strength of clip, taping harness before taping clip and harness

(7) Splice

Connecting more than 2 cables by compressing electrically, physically
(The number of splice for each point shall be with 3 times except main cable)

5. Specification on Specification Drawing

- (1) Outer dimension and dimension tolerance (dimension tolerance is not indicated sometimes)
- (2) Taping (half-lap taping, rough taping, partial taping, water-proof taping, direction instruction for water-proof taping, etc)
- (3) Used parts (connector, clip), forming protector, tube, protector, foaming sheet, rubber cap.
- (4) Allay of terminal
- (5) Capacity of fuse, capacity of break
- (6) Kind of cable, cable diameter and color
- (7) Processing of appearance of harness (branch angle, bending, splice, fixing method of LA terminal)
- (8) Processing of edge of shield
- (9) Location of Splice
- (10) Instruction on safety tap for protecting separation of lead terminal bolt, if necessary.
- (11) Water proof taping when fixing water-proof booth (not required for joint)
- (12) Special fixing method for assembly clip
- (13) Cable put out of forming protector(if possible)
- (14) Kind of terminal requiring evaluation of terminal pressure

6. Evaluation Standard

Evaluation standard shall be in accordance with table 1.

Remarks 1. Evaluation item and method of table 1 shall be in accordance with the following example

Evaluation item		Method	
Durability	vibration resistance	1st evaluation method	7.5.1
	· operation of slider	2nd evaluation method	· 7.3.1
	· · joint	3rd evaluation method	· · 7.3.7

Remarks 2. Quality rank is A, AR, B and C.

The definition is in accordance with KES Q-A002

3. In table1, there is evaluation item for harness parts, however, each parts shall satisfy the following standard

- Contactor : KES D-C602
- Vinyl adhesion tape : KES D-C603
- Magnetic cohesive silicon rubber tape : KES D-C604
- Urethane tape(foaming sheet) : KES D-C605
- Paper Adhesion tape : KES D-C606
- Cotton tape : KES D-C607
- Corrugated tube : KES D-C608
- Vinyl tube : KES D-C609
- Silicon vanish glass tube : KES D-C610
- Vinyl film(protect vinyl) : KES D-C611
- Heat contraction tube : KES D-C612
- Zipper tube : KES D-C613
- Irradiation tube : KES D-C614
- Twist phason : KES D-C615
- Shield line : KES D-C616
- PP bar : KES D-C617
- Press type battery terminal : KES D-C618
- Resin : KES D-C619
- Protector : KES E-G003
- Blade fuse : KES E-K001

Table 1

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Appearance	Half Lap Taping	(1) Cable shall be connected perfectly  (2) Half of width of tape shall be overlapped (3) Center wire shall not be seen (4) It shall not be protruded from attached point of tape.(except shape changing point like inside of tape, branching point, etc) (5) End of tape shall not be detached.	B	7.2.1
	Random Taping	(1) Cable shall be connected perfectly.  (2) Width of pitch shall be 1.5 times than that of tape.  Tape width 0.5 times of Tape width (max. 25mm) (3) It shall not be protruded from attached point of tape.(except shape changing point like inside of tape, branching point, etc) (4) End of tape shall not be detached.	B	7.2.2
	Partial Taping	(1) Cable shall be connected perfectly  (2) Overlapping 2 ~ 5 times. If it is difficult to judge, evaluate comparing it with samples.	B	Inspect visually

Table 1(continued)

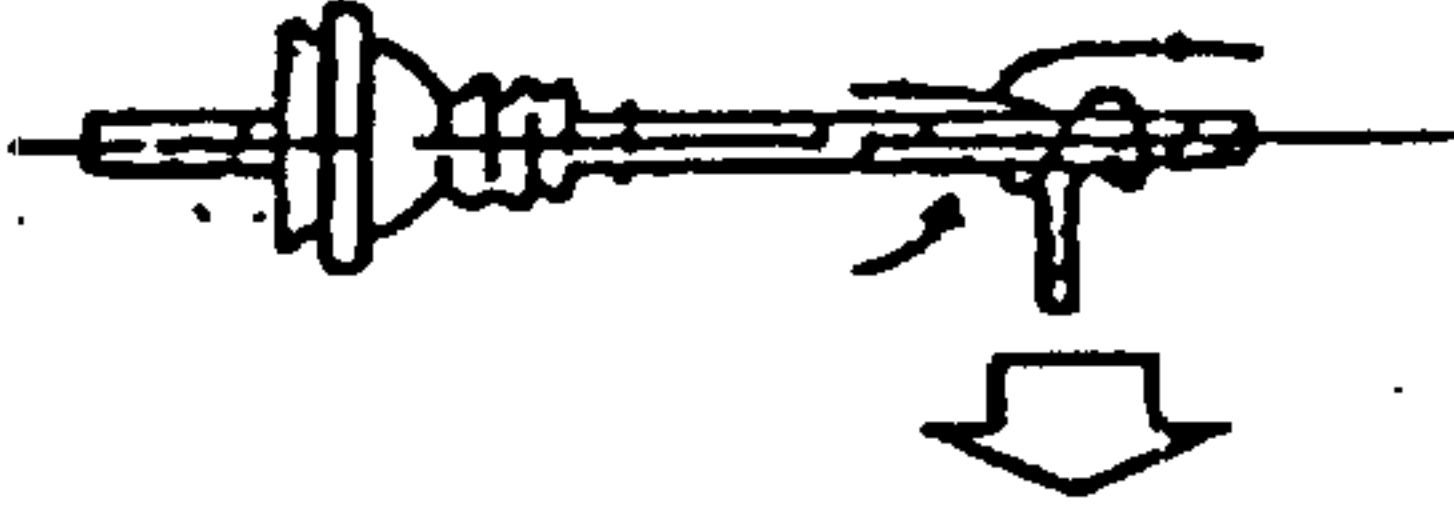
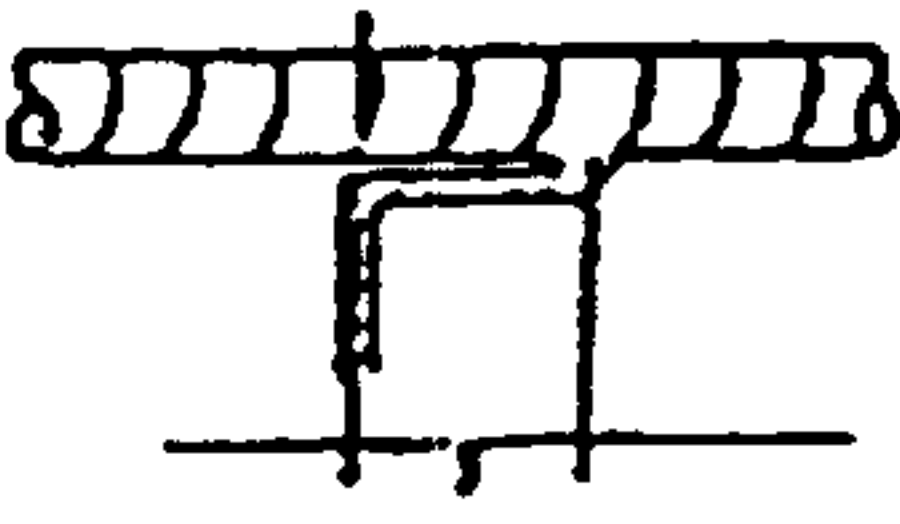
Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Appearance	Water Proof Taping	(1) Cable shall be connected perfectly (2) Center wire shall not be seen (3) It shall not be protruded from attached point of tape.(except shape changing point like inside of tape, branching point, etc) (4) End of tape shall not be detached. (5) Triple binding toward direction of drawing. Half-lapping taping  Grommet Triple Binding (a) Foundation taping by half-lapping without grommet (b) Attach grommet and bind 2 times by half-lapping on grommet and at harness. (6) Branching is taping by twisting and folding not to be seen branching point in principle.  Branching point shall be taped in X shape  Bending and twisting	B	7.2.3

Table 1(Continued)

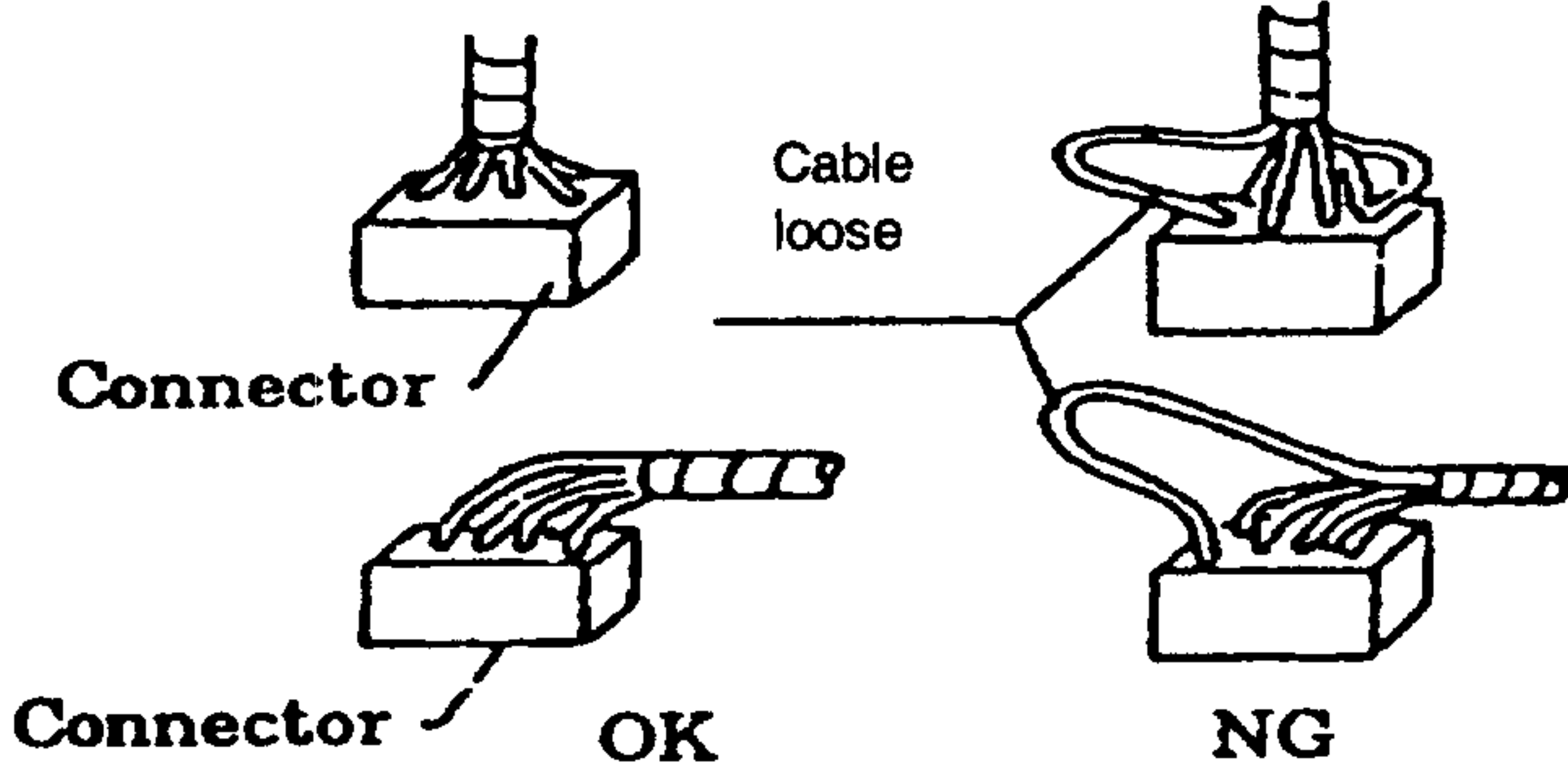
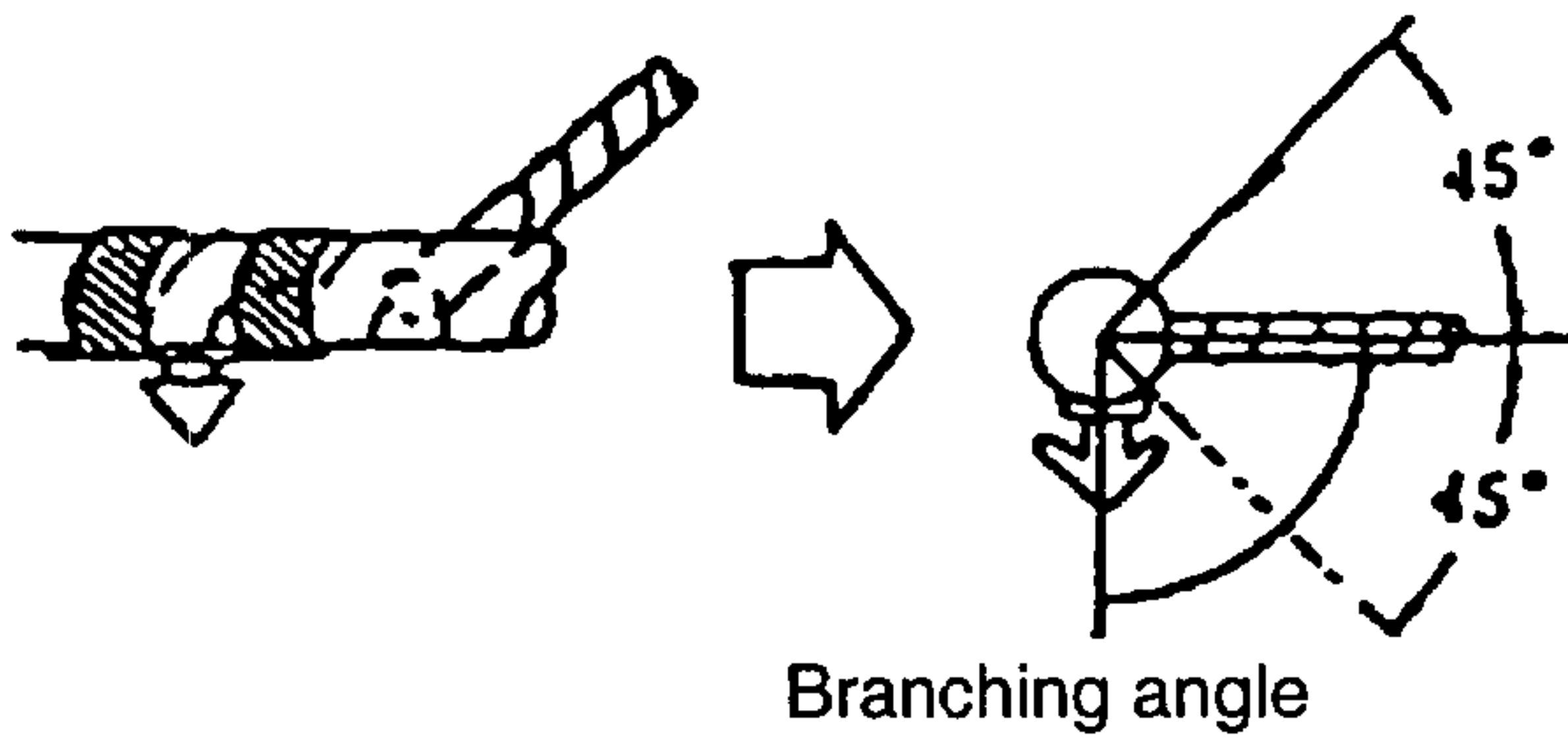
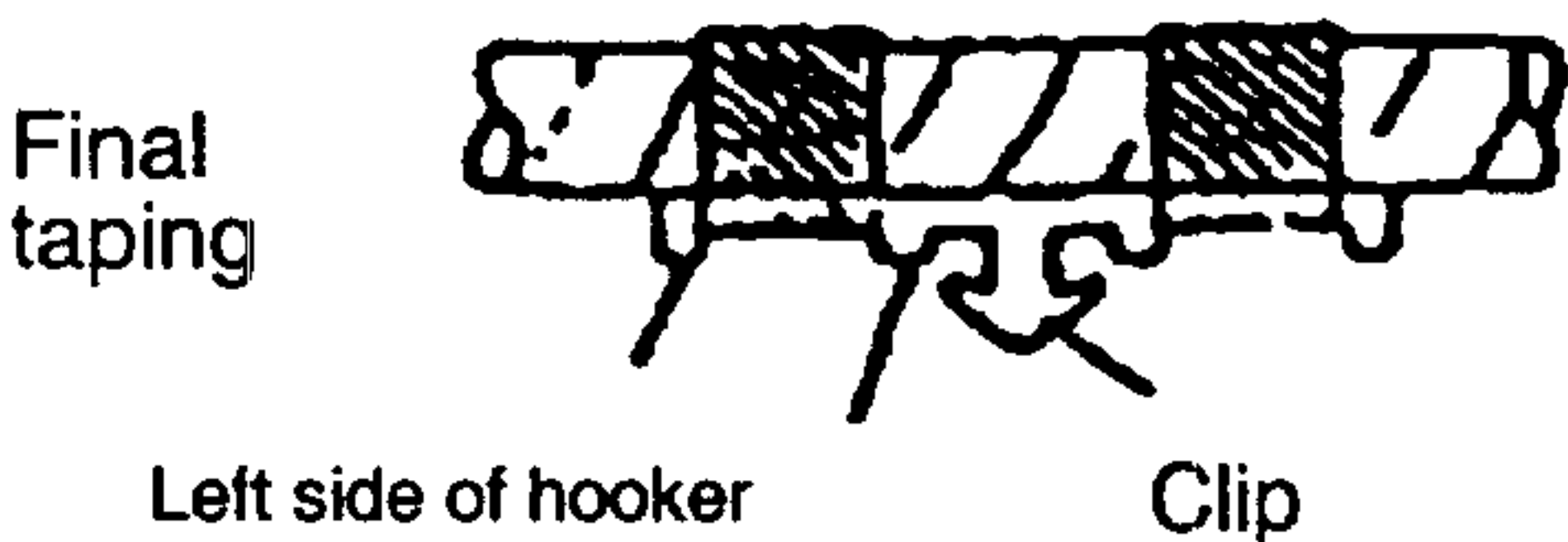
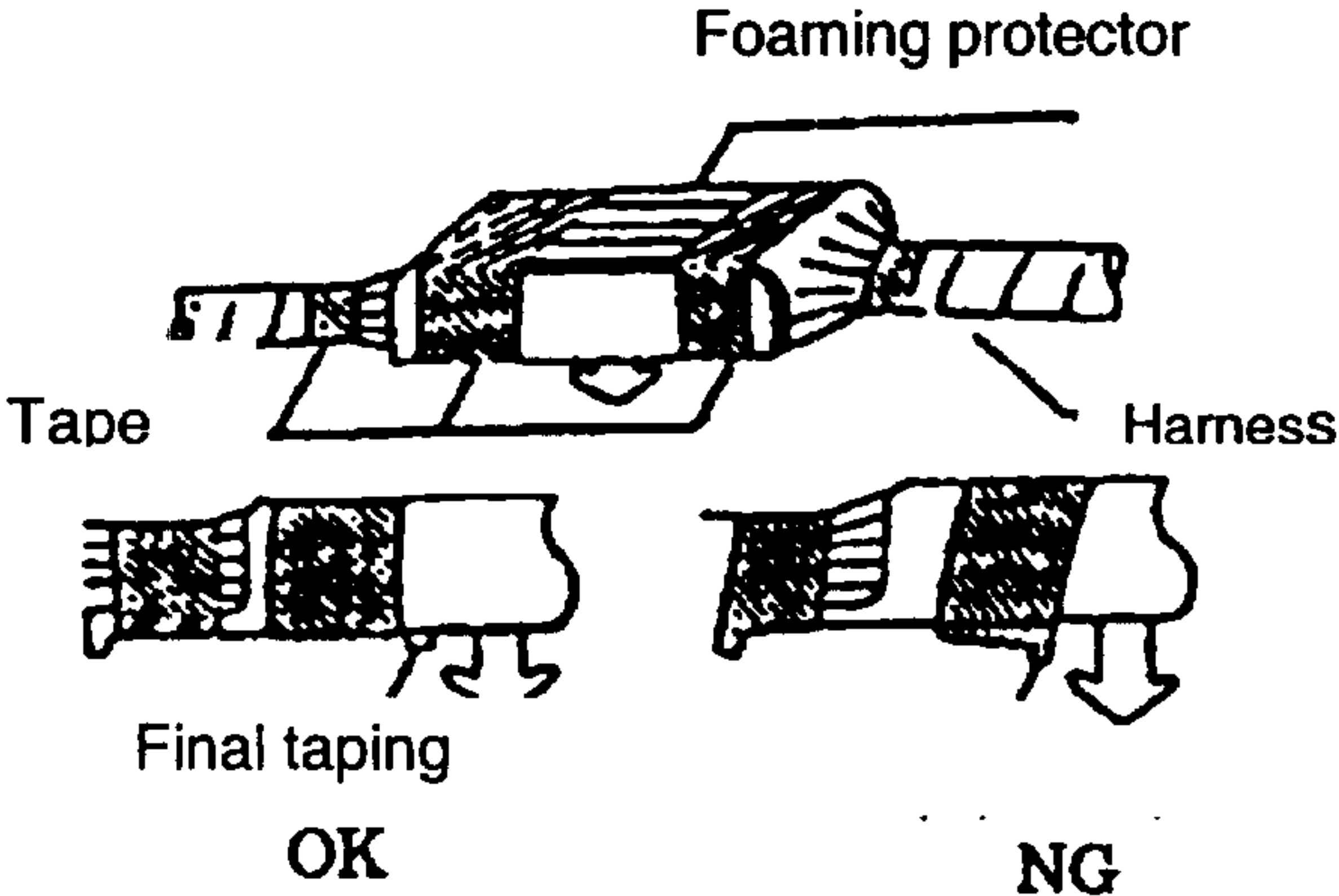
Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method												
Appearance	Contact Point	(1) No feeling of loose on cable.  If it is difficult to judge, identify if it meets standards of sample.	B	Inspect visually												
	Outer Dimension	(1) It shall meet standard of specification drawing. (2) If dimension tolerance is not specified on specification drawing, it meets following tolerance. <table border="1"><thead><tr><th>Outer Dimension(mm)</th><th>Tolerance(mm)</th></tr></thead><tbody><tr><td>Below 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>1001 ~ 3000</td><td>+40 ~ -20</td></tr><tr><td>3001 ~</td><td>+50 ~ -25</td></tr></tbody></table>	Outer Dimension(mm)	Tolerance(mm)	Below 200	+10 ~ -5	201 ~ 500	+20 ~ -10	501 ~ 1000	+30 ~ -15	1001 ~ 3000	+40 ~ -20	3001 ~	+50 ~ -25	B	7.2.2
	Outer Dimension(mm)	Tolerance(mm)														
Below 200	+10 ~ -5															
201 ~ 500	+20 ~ -10															
501 ~ 1000	+30 ~ -15															
1001 ~ 3000	+40 ~ -20															
3001 ~	+50 ~ -25															
Branching Point	The harness that branching angle is specified on specification shall move within $\pm 45^{\circ}$ from the center of branching angle.  Branching angle Otherwise, branching angle shall be 90° .	B	7.2.5													

Table 1(Continued)

Evaluation Item	Evaluation Standard	Quality Rank	Evaluation Method
Appearance Fixing Tube and Sheet	(1) In principle, fissure shall not be found. (a) Taping tube and seat within 1 and half times. (b) If not specified in specification drawing, use 0.5mm of thickness vinyl tube (2) Cable shall not be protruded. (3) Final taping shall be needed not to cross it from fixing point. (a) Cutting point at branching point (b) No cutting point at branching point	B	7.2.6

Table 1(Continued)

Evaluation Item		Evaluation Standard	Quality Rank	Evaluation Method
Appearance	Assembly Clip Fixation	(1) In principle, no hanging of tape and band on the left point of hanger and end point of taping. (2) Taping times of Tape for fixing clip shall be as below. (a) Clip(one side) * Harness diameter $\leq \phi 30\text{mm}$ 1 times of foundation taping on one end of harness, 3 times of upper taping 3 times at other end of it. * Harness diameter $\geq \phi 30\text{mm}$ 1 times of foundation taping on one end of harness, 5 times of upper taping 5 times at other end of it. (b) Clip(both side) 1 times of foundation taping and 5 times of upper taping. Final taping  However, If it crossed X-shaped, it is possible that it is hanging on end of tape.	B	Inspect visually
	Foaming Clip Fixation	(1) No hanging of tape and band on the left point of hanger and taping point.  (2) In principle, cable shall not be protruded from foaming protector.(otherwise, it is specified in specification drawing)	B	7.2.5