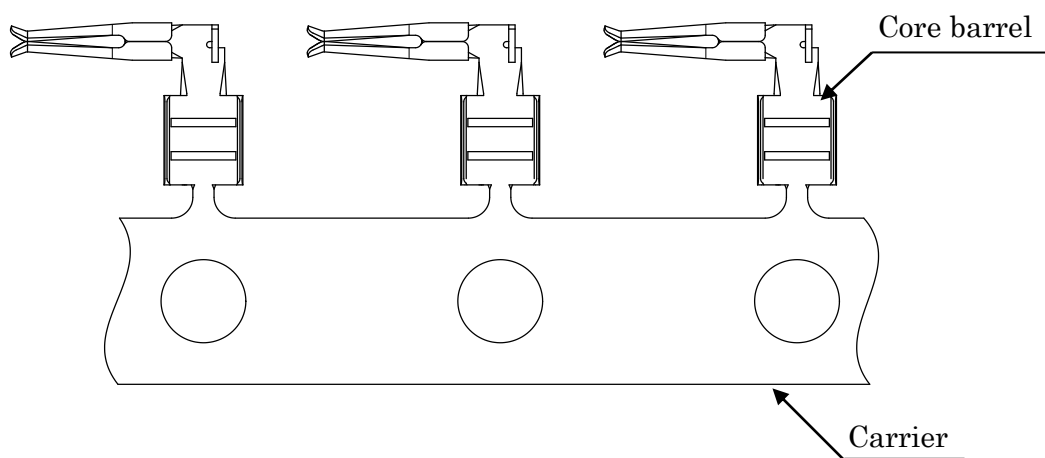


INSTRUCTION MANUAL FOR GT36G TERMINALS

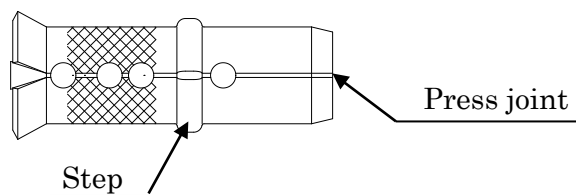
	COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
△	1	DIS-T-00011862	YK.HOSHI	MH.YAMAGUCHI	20211102
名 称 TITLE INSTRUCTION MANUAL FOR GT36G TERMINALS			HRS HIROSE ELECTRIC CO., LTD.		
			APPROVE D	KI.HIROKAWA	20171128
			CHECKED	MO.OKADA	20171128
			DESIGNED	KJ.OBINATA	20171128
			WRITTEN	KJ.OBINATA	20171128
技 術 指 定 書 TECHICAL SPECIFICATION			ETAD-T0400-01		△ 1 / 26

1. Names of Parts

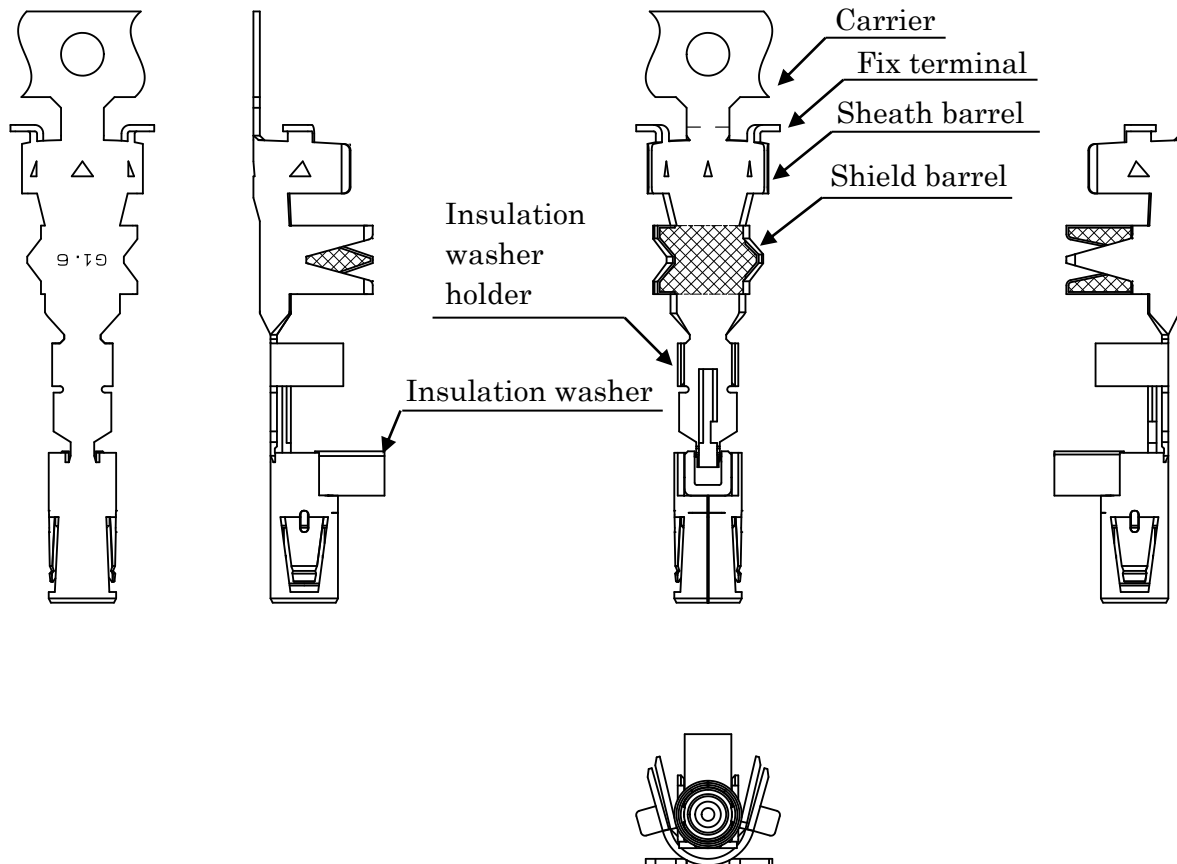
GT36-2428SCF Center terminal



GT16G-1.5DHQS(L) Outer ferrule



GT36G-1.6-2.9SCF Outer terminal



2. Construction of Parts

	Hirose part name	Hirose part number
Center terminal	GT36-2428SCF	CL786-0001-7-00
Outer ferrule	GT16G-1.5DHQS(L)	CL766-0111-0-00
Outer terminal	GT36G-1.6-2.9SCF	CL786-0025-5-00

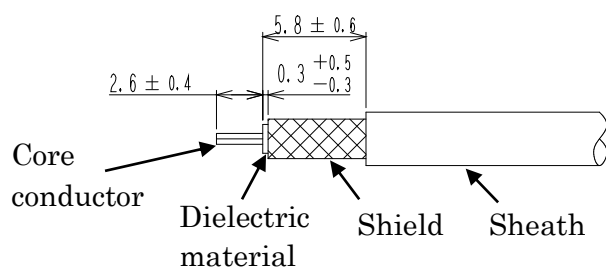
3. Crimping instruction

	Process	Connection jig
1	Termination of coaxial cable.	MCM Cosmic 48R, etc. Commercial item
2	Insert outer ferrule	Outer ferrule temporary insertion jig※1 GT16G-1.5DHQS/PR-MD Outer ferrule insertion jig GT36G/PR-MD
3	Crimping center terminal.	Crimping machine 105 type + AP105-GT36-2428S※2
4	Cutting outer carrier	Manual labor
5	Insert the outer contact.	GT36G-1629S/CK-AD※2
6	Insert the center terminal. Cable clamp	
7	Bending outer terminal, and crimping.	
8	Assembling housing and cover.	Manual labor
9	Inspection.	Inspection of high frequency property (Agilent Technologies E5071C, etc. Commercial item) Recommended Appearance.

※1 Temporary insertion of an outer ferrule is possible without using a temporary insertion jig.

※2 Cable connection jig can be different as function of the C/H of the cable.

(1) Crimping procedure

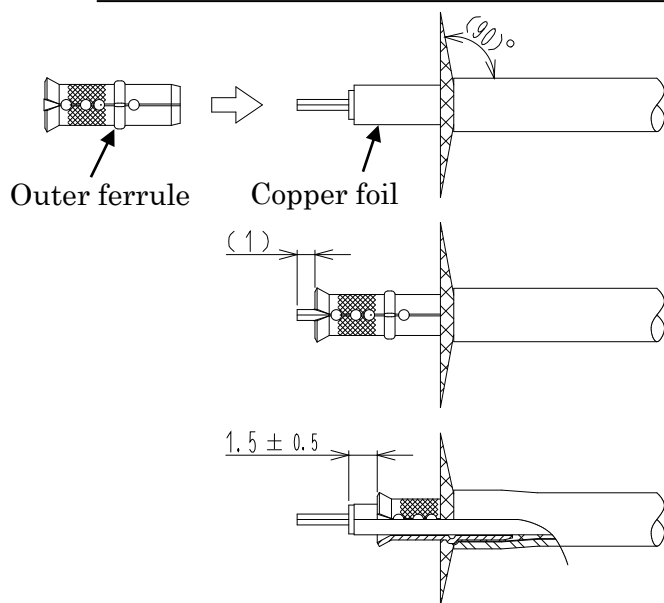


① Termination of coaxial cable.

※The dimension of the strip is adjusted so that the dimension after crimping satisfies the standard value.

※Crimping standard is dielectric material, when crimping center terminal.

※Crimping standard is center terminal, when crimping outer terminal.



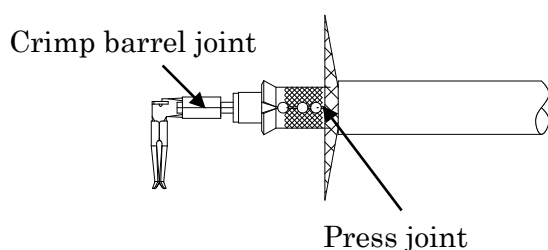
② Spread out only a shield.

Insert outer ferrule until a core conductor is visible.

※It's not necessary to add a process of unfasten a shield.

※Attention involvement in copper foil before put in outer ferrule.

※The set of jig is bumped into dielectric material.

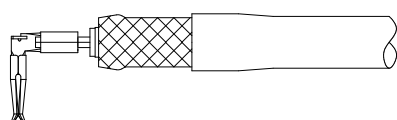


③ Crimping center terminal.

※Bump a dielectric material to an applicator and crimp it.

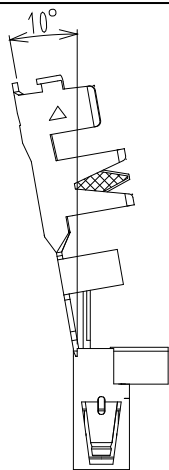
※Although the direction of the directivity is not required, it is recommended that crimped press joint of the outer ferrule and crimping press joint of the center terminal to same direction.

※It is ok, to crimp after returning the shield.



④ Return the outer shield to the outer ferrule.

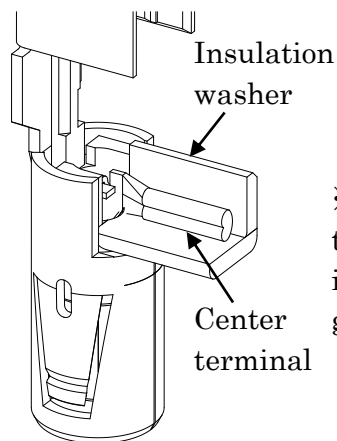
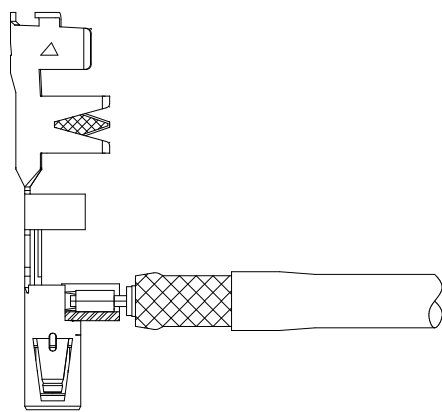
Push the shield back to the outer ferrule by moving it 180 degrees for each time.



⑤ Insert the outer terminal cut from the carrier into the exclusive jig.

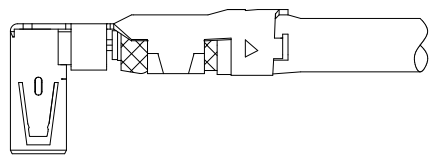
※The allowable maximum bent of the outer terminal is 10° as shown in the drawing.

Bending up to 10° is allowed only once.



⑥ Insert the center terminal into the outer terminal.

※Insert the center terminal to the insulation washer when inserting it. Insert it along the groove of the insulation washer.



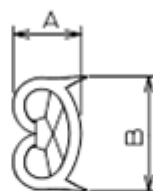
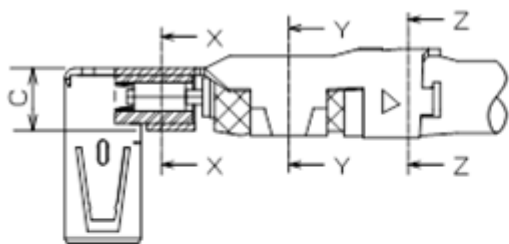
⑦ Crimp the shield and sheath.

※Use our exclusive jig for crimping.

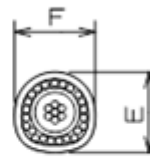
Crimping height list

Cable manufacturer	Cable name	Measuring position								Tensile strength
		A	B	C	D	E	F	G	H	
Fujikura Ltd.	ZHR-1.5D-QEFA	0.58	1.28	2.57	2.70	3.23	2.75	3.76	3.75	98N MIN
		~	~	~	~	~	~	~	~	
Sumitomo Electric Industries	1.5DS-GXC-SP(HF)	0.64	1.38	2.63	3.00	3.29	2.95	3.84	3.95	98N MIN
		~	~	~	~	~	~	~	~	
Yazaki Corporation	1.5DS-FBP	0.58	1.28	2.57	2.70	3.23	2.75	3.76	3.75	98N MIN
		~	~	~	~	~	~	~	~	
Sumitomo Electric Industries	1.5DS-GXC-SP	0.64	1.38	2.63	3.00	3.29	2.95	3.84	3.75	98N MIN
		~	~	~	~	~	~	~	~	
Sumitomo Electric Industries	1.5DS-GXC-SP LF	0.58	1.28	2.57	2.70	3.23	2.75	3.84	3.75	98N MIN
		~	~	~	~	~	~	~	~	

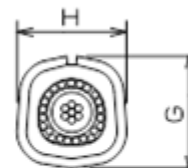
①



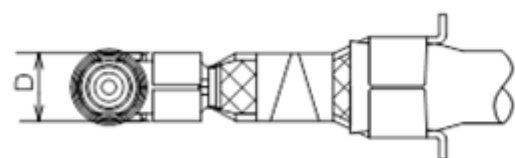
Cross section XX



Cross section YY



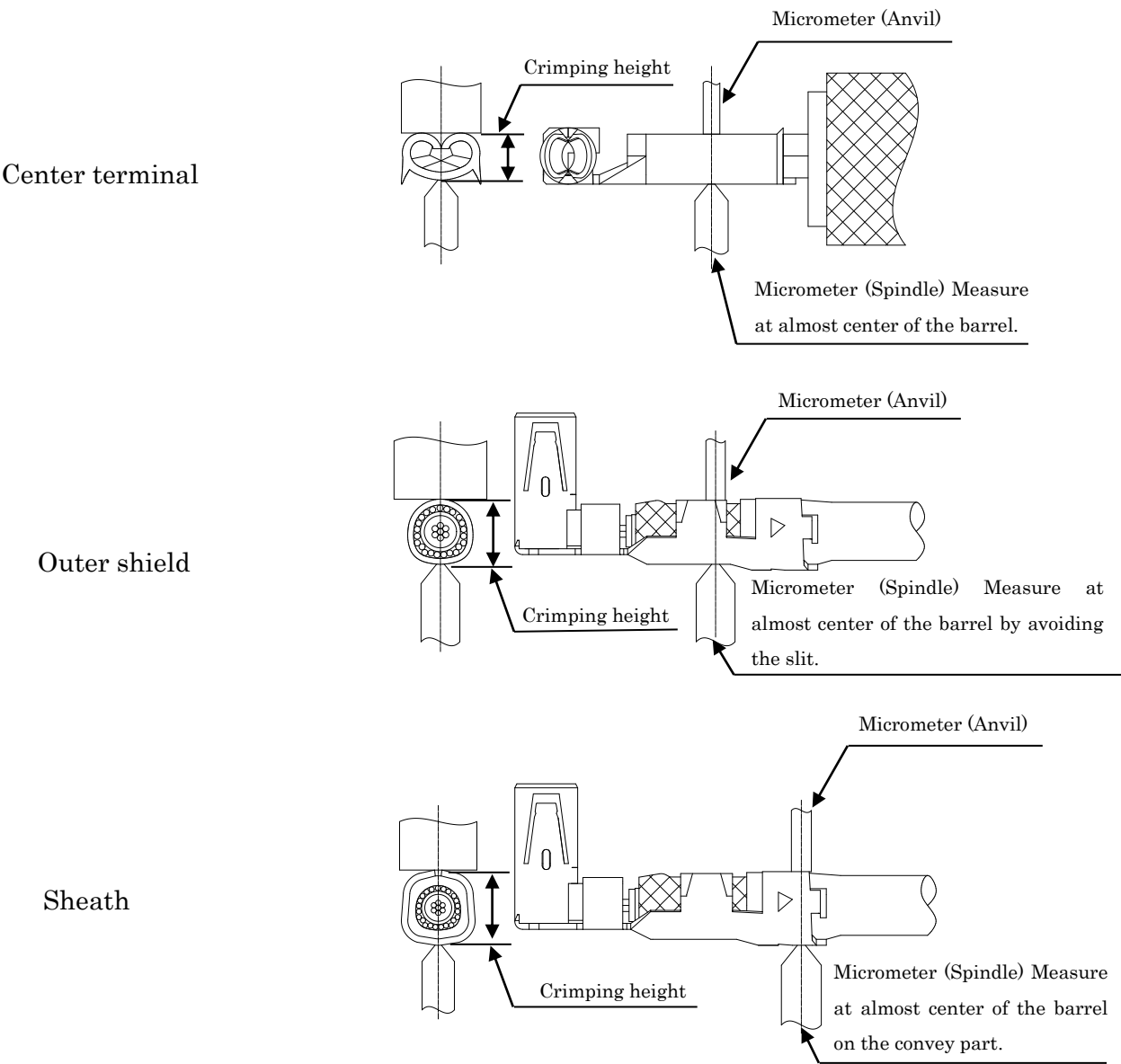
Cross section ZZ



※Please check the tensile strength as function of your practical use before using.

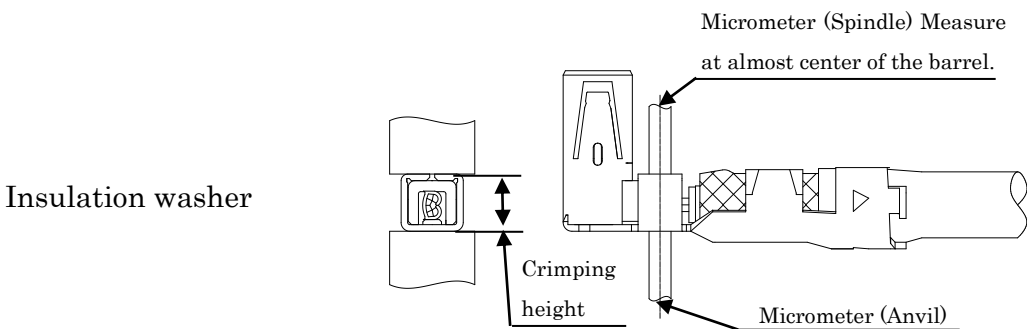
Center terminal, Outer shield, Sheath C/H measuring method

Use a micrometer with a blade for the spindle and a micrometer (Mitutoyo CHM-25, etc.) with a blade for the anvil. Measure as shown below.



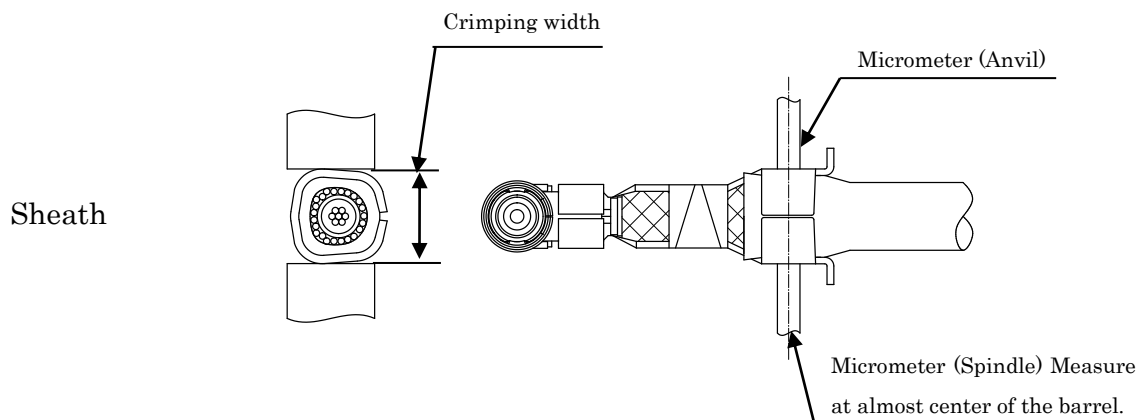
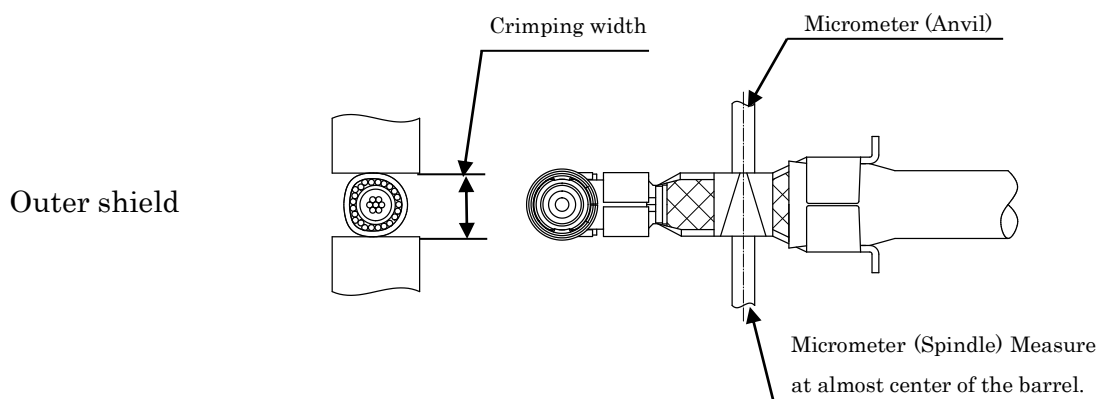
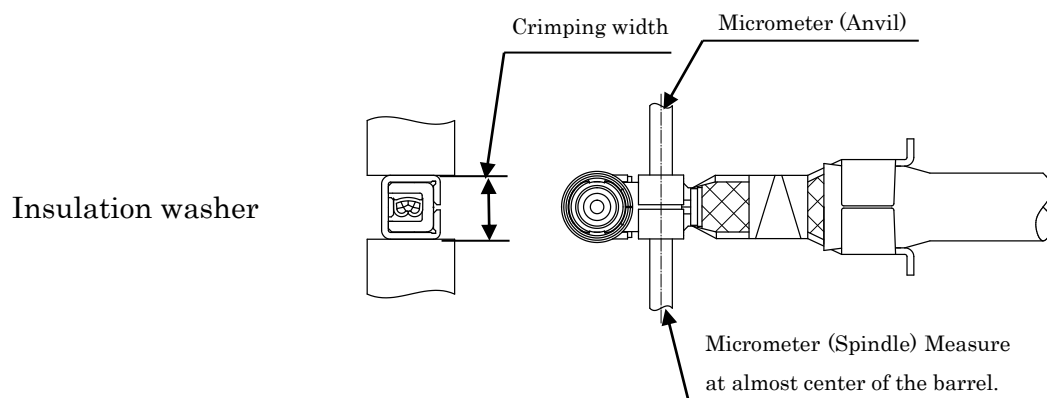
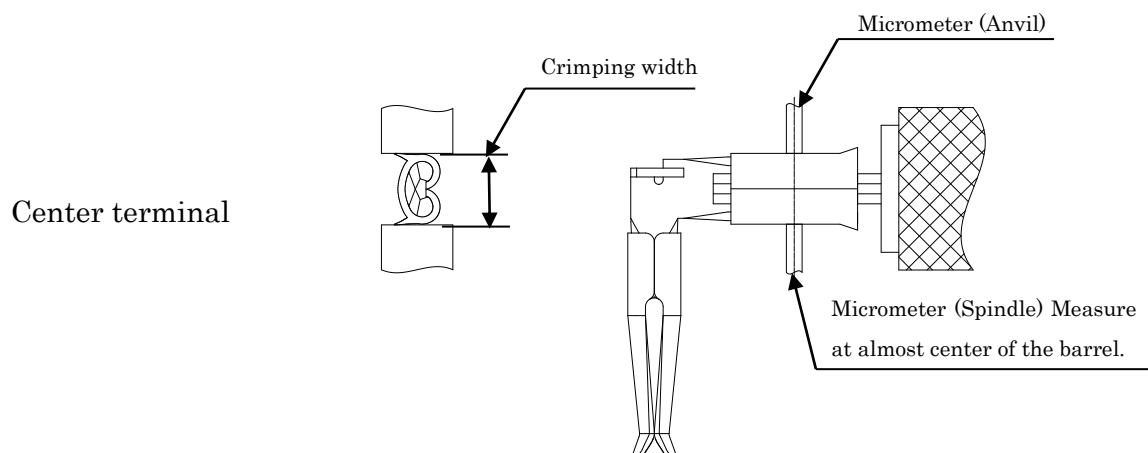
Outer insulation washer C/H measuring method

Use a micrometer with a blade for the spindle and a micrometer (Mitutoyo BLM-25M/0.4T, etc.) with a blade for the anvil. Measure as shown below.



Center terminal, Outer insulation washer, Outer shield, Sheath C/W measuring method

Use a micrometer with a blade for the spindle and a micrometer (Mitutoyo BLM-25M/0.4T, etc.) with a blade for the anvil. Measure as shown below.



Tensile strength measuring method

Test method

Fix the outer terminal with a jig (GT36/WH-MD), pull in the pulling direction shown below at 100 mm/min, and measure the strength of the crimped part.

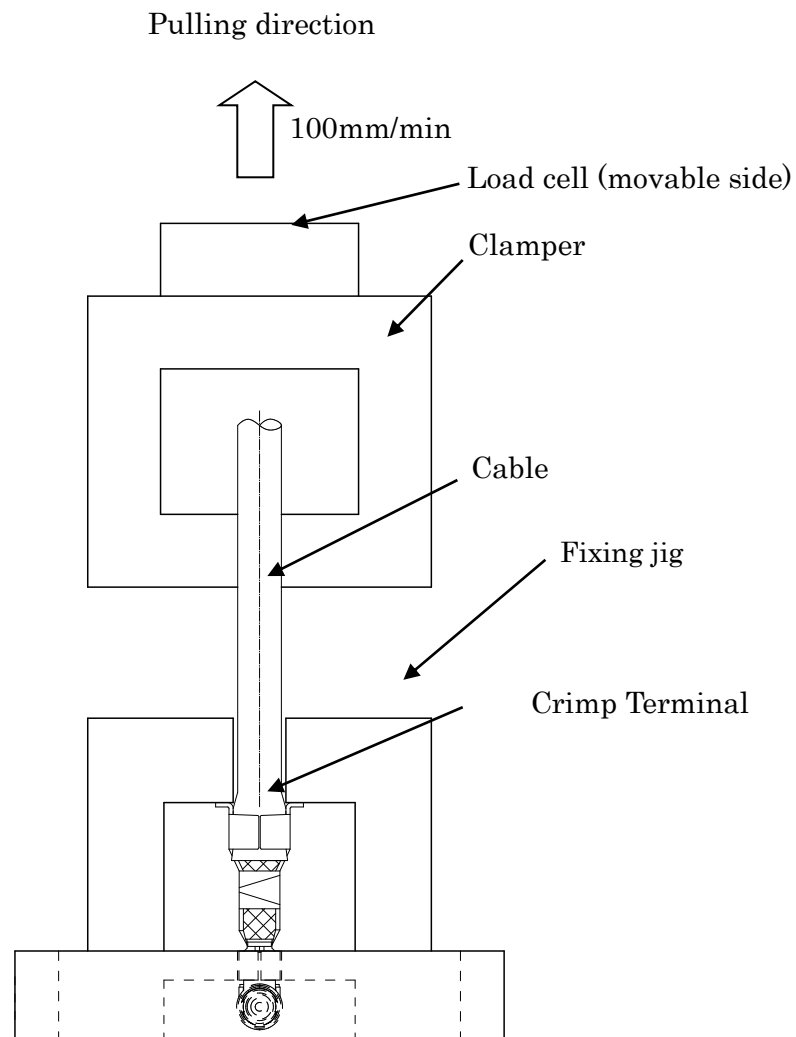


Fig. Outline of Pulling Test

(2) Crimping quality standard

①Crimping quality standard of the crimp terminals GT36-2428SCF

②Applicable cable

GT36-2428SCF

Applicable core sizes : AWG#24 to #28 or equivalent

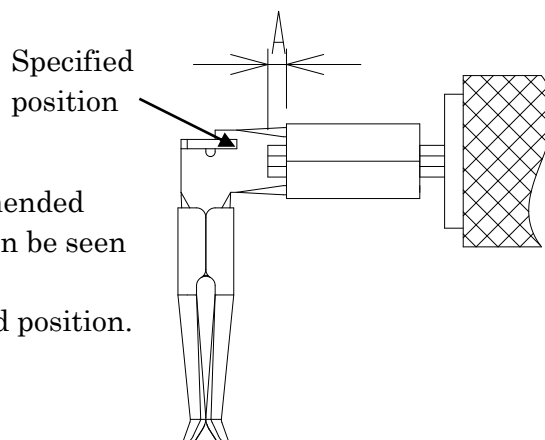
③ Quality standard

• Crimping position

	Dimension (mm)
A	0.1 or more

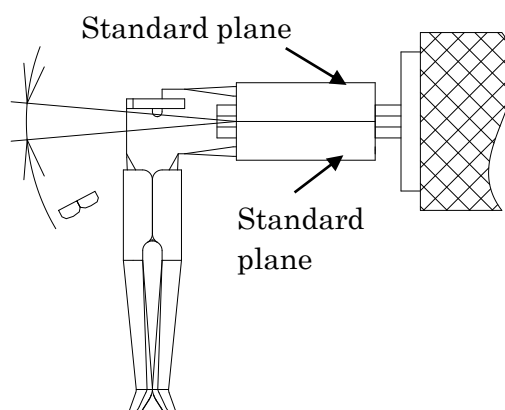
※The specified dimension A is a recommended value. The quality is OK, if the core can be seen from the core barrel

※The core must not contact the specified position.



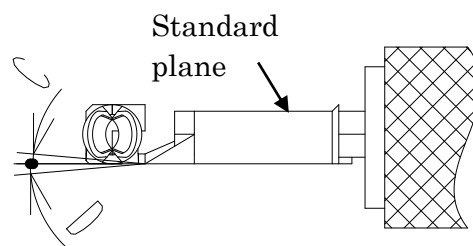
• Twisting

	Angle
B	±3° or less



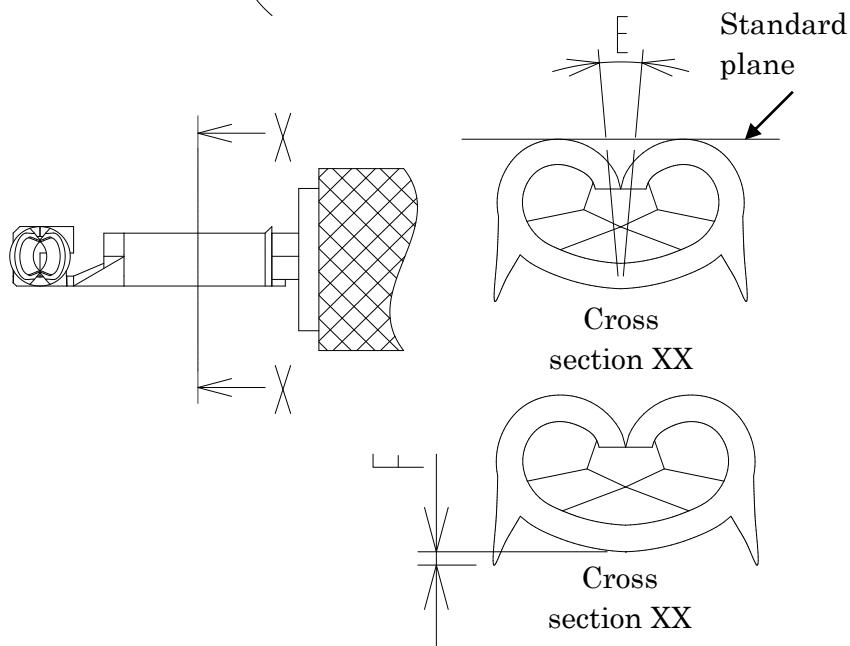
• Bending up, Bending down

	Angle
C	10° or less
D	5° or less



• Rolling

	Angle
E	±5° or less

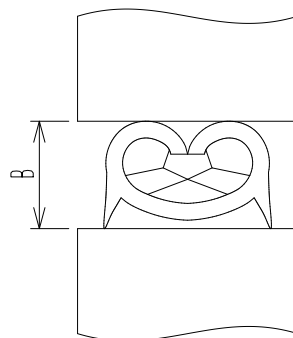
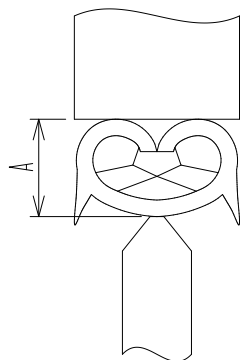


• Crimp burr height

	Dimension (mm)
F	0.05 or less

Burr height measuring method

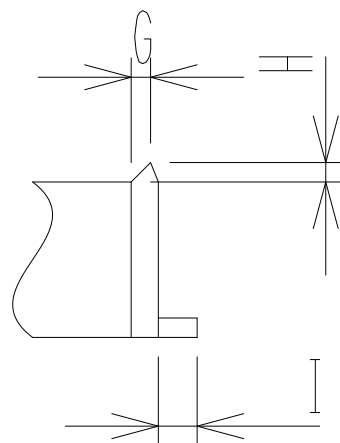
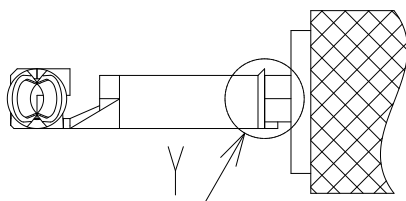
Measure the dimension A with a micrometer (point and blade). Then, measure the dimension B with the micrometer (blade and blade) and calculate the burr height from the difference between dimensions A and B.



- Bell mouth, Cutoff tab

	Dimension (mm)
G	0.5 or less※
H	0.5 or less
I	0.2 or less

※The bell mouth should exist.



Enlarged view of
portion Y

①Crimping quality standard of crimp terminal GT36G-1.6-2.9SCF

②Applicable cable

Insulator O. D : 1.5~2.0

Shield O. D : 2.0~2.5

Sheath O. D : 2.6~3.4

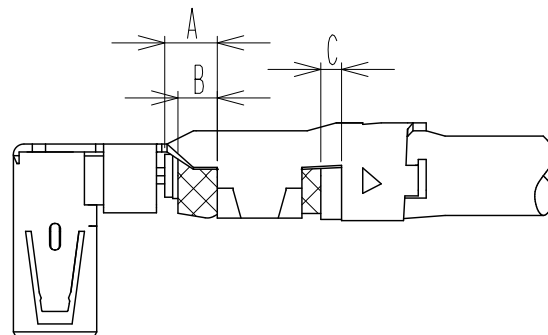
③ Quality standard

• Crimping position

	Dimension (mm)
A	1.4~2.4
B	0.1 or more
C	0.3~1.2

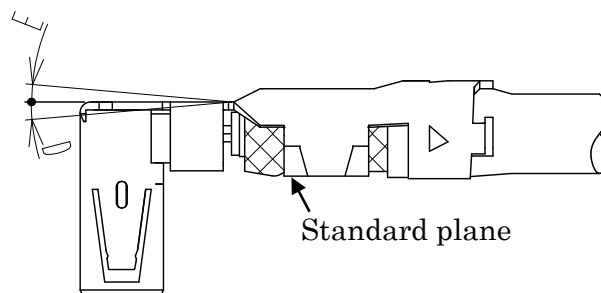
※The specified dimension B is a recommended value.

The quality is OK if the shield braid can be seen between the shield barrel and cable Insulator.



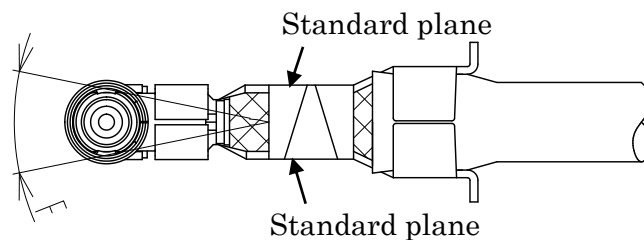
• Bending up, Bending down

	Angle
D	5° or less
E	5° or less



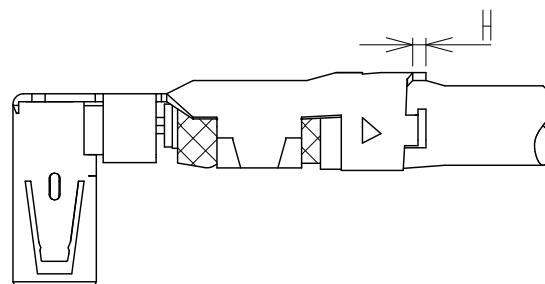
• Twisting

	Angle
F	±5° or less



• Cutoff tab

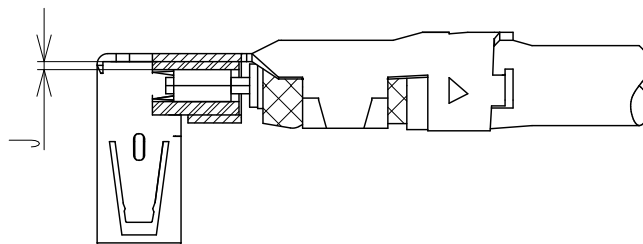
	Dimension (mm)
H	1.0 or less



• GAP Dimension between Center terminal and Outer terminal.

	Dimension (mm)
J	0.02 or more

※Withstand voltage or insulation resistance is substitute method of inspection for dimension.



(3) Recommended inspection

① Appearance

Should be free from flaws, deformations, plating separation, etc.

(Plating should not be separated from a flaw in the bending punch interference portion of the outer contact. Base material should not be seen.)

② With stand voltage※

Should be free from short circuit or insulation breakage when 400V AC is applied for one second.

2 mA leak current should be regarded as insulation breakage.

③ Insulation resistance※

Insulation resistance should be over 100MΩ when 500V DC is applied for 1 min.

You may stop applying once insulation resistance reaches to 100MΩ.

④ High frequency property

When inserting the inspection connector GT36P-HRMJ, as for ETC usage frequency band.

Insertion loss is 1.6dB or less.

Assuming the ETC wire, $2.0(\text{dB/m}) \times L (\text{m})$ is add to the insertion loss of the connector.
L is the cable length from the connector.

Example of the calculation insertion loss standard value as ETC wire.

In the case of a length of 1.0m wire using connector GT36G on the both ends.

Insertion loss standard value of an ETC wire = $1.6 + 1.6 + 2.0 \times 1.0 = 5.2\text{dB}$ or less

Calibration and inspection should be done, under the following requirement.

Frequency range	Measuring instrument MIN(5775MHz or less) ~ 5845MHz
Output level	0dBm
Calibration circuit	Follow Fig. 1
Measuring method	After the calibration, the measuring object is connected to the port 1 and the port 2. and measuring the insertion loss.
Measuring circuit	Follow Fig. 2

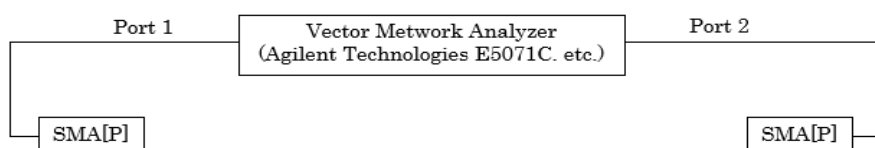


Fig.1. Calibration circuit

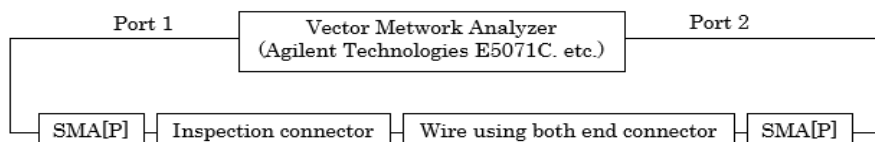


Fig.2. Inspection circuit

※Either withstand voltage or insulation resistance should be inspected.

4. Instructions

- (1) Do not touch the terminal contacts or inside of the barrel.
- (2) Do not put any object on a terminal. Do not drop terminals. Otherwise, terminals may be deformed or become dirty. Handle terminals carefully.
- (3) Do not pull terminals forcedly when they are entangled. Disentangle carefully to avoid deforming them.
- (4) Be careful not to deform terminals when touching them.
- (5) Do not store terminals in a dusty place.
- (6) Do not apply intense shocks to terminals.
- (7) Do not put wire harnesses on the floor.
- (8) Connectors are easily affected by shocks. Do not throw or swing them.
- (9) Do not handle parts in such a manner as the connector is deformed or flawed or terminals are deformed.
- (10) If the housing, cover is removed, the part cannot be reused. Replace it with a new part and assemble.

5. Storage Conditions

Storage place	Temperature & humidity conditions	Storage period
Indoor storage	15~30℃、60%Rh or less	Six months (in our packing condition)

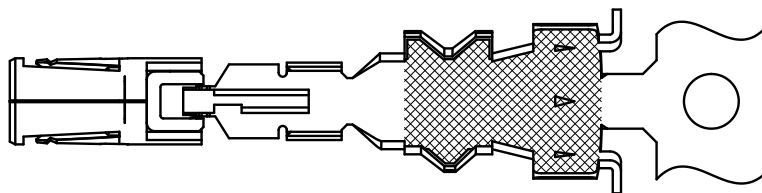
Store the products in a place that meets the following conditions, if they cannot be stored in an air-conditioned warehouse as shown above. Do not store the products in a place with much humidity or dust, exposure to direct sunlight, etc.

Storage place	Temperature & humidity conditions	Storage period
Indoor storage	-30~60℃、80%Rh or less	Six months (in our packing condition)

Appendix 1

- Contact prohibited areas: Terminal contact and inside of barrel : 

GT36G-1.6-2.9SCF



- Protrusion standard of the shield braid of shield barrel.

As shown below, a harness that is crimped with shield braid at outside of the barrel is an NG product. Even if the shield braid is returned, the positional deviation of the outer contact of the caulking jig, or the insufficient insertion amount of the center terminal to the insulation washer, occurs in the irregular work. The outer contact size J after crimping is excluded from standard.

Abnormal appearance



Normal appearance

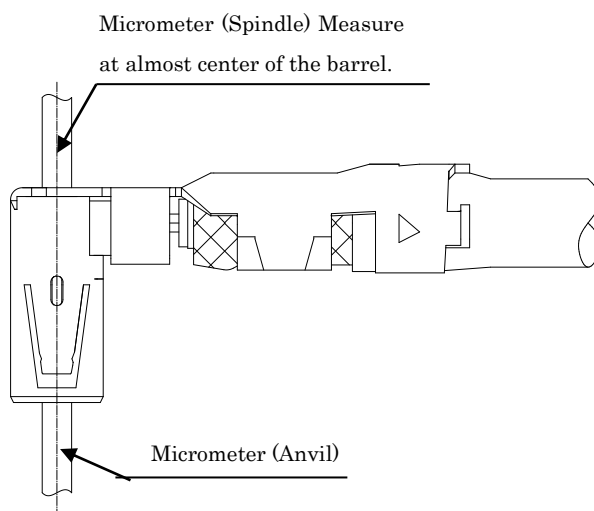
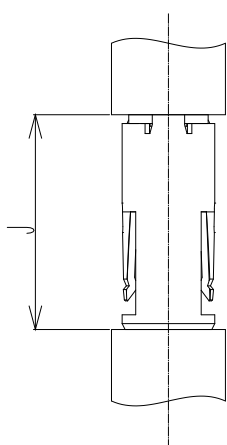


The shield braid crimped outside of the barrel.

- Outer contact size after crimping (reference)

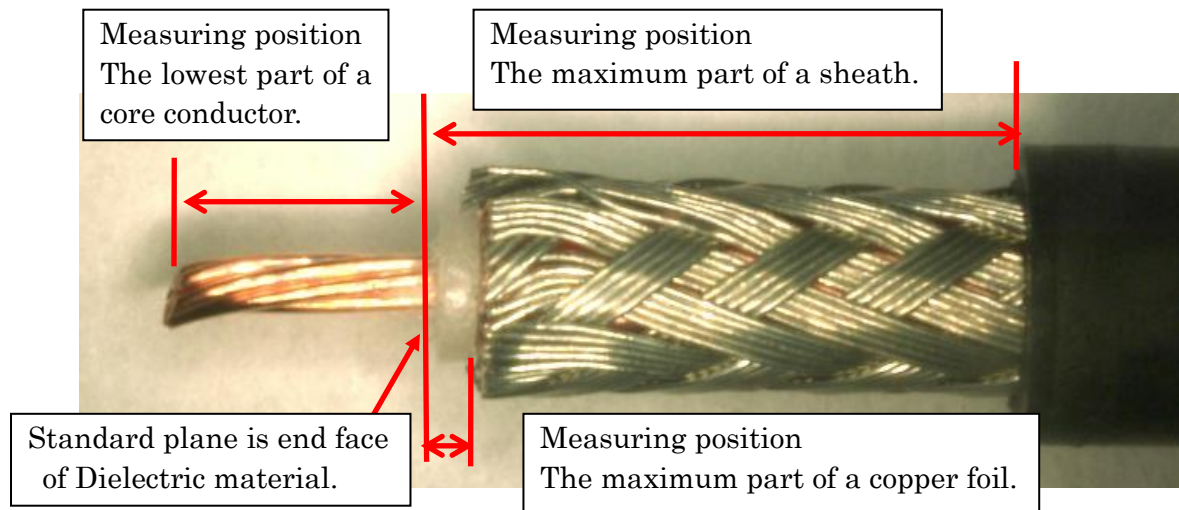
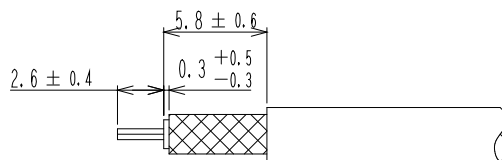
Please measure as shown on Fig by using a micrometer with a blade on the spindle side and the anvil side. (Mitutoyo BLM-25M/0.4T, constant pressure value 5~10N, etc.)

	Dimension(mm)
J	7.4±0.1

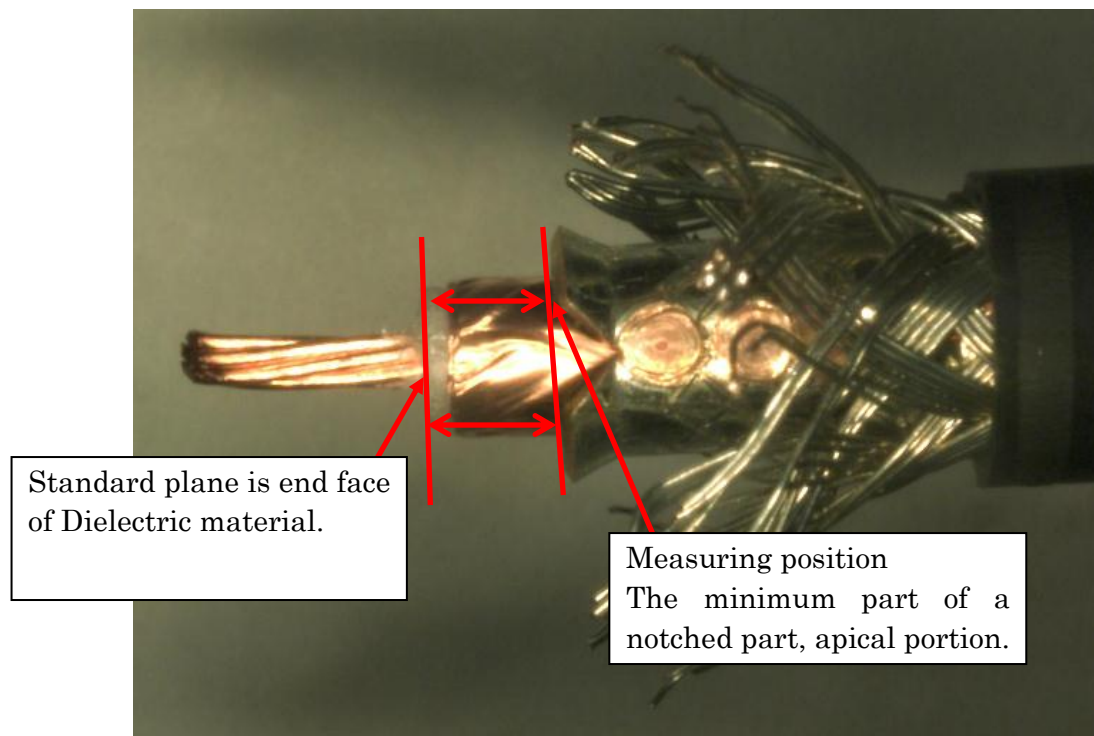
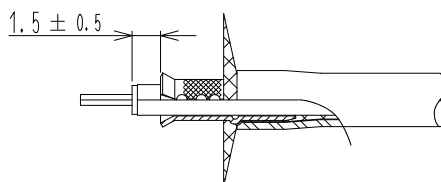


Appendix 2

- The dimension of the strip



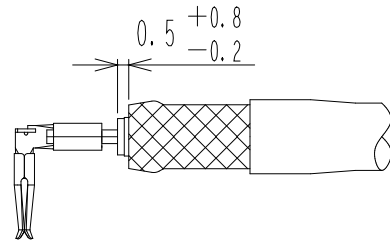
- Gap between dielectric material and outer ferrule



- Returned braid status (reference)

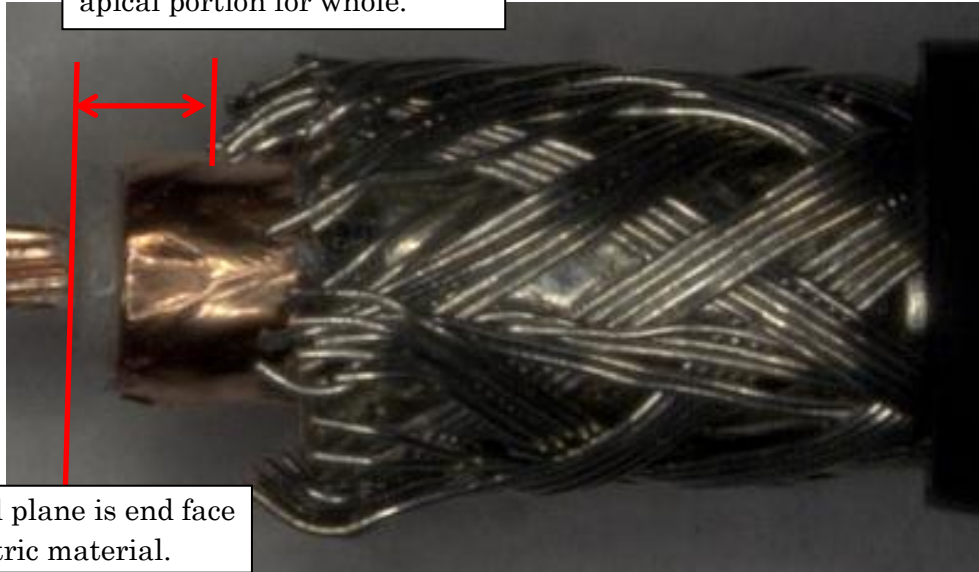
braid apical position is reference.

The quality is OK, if the crimping position standard of outer contact and high frequency property standard is satisfied, even if a dimension is dislocated.



Measuring position

The minimum part of a braid apical portion for whole.

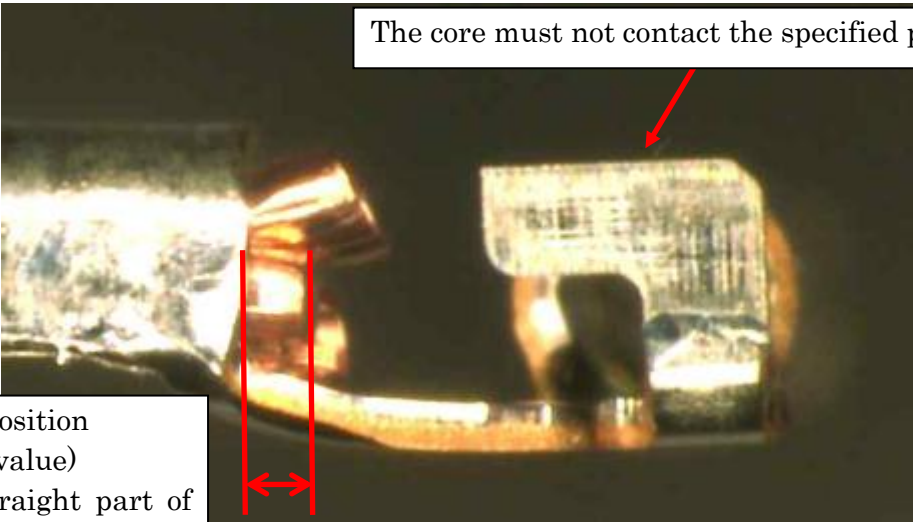
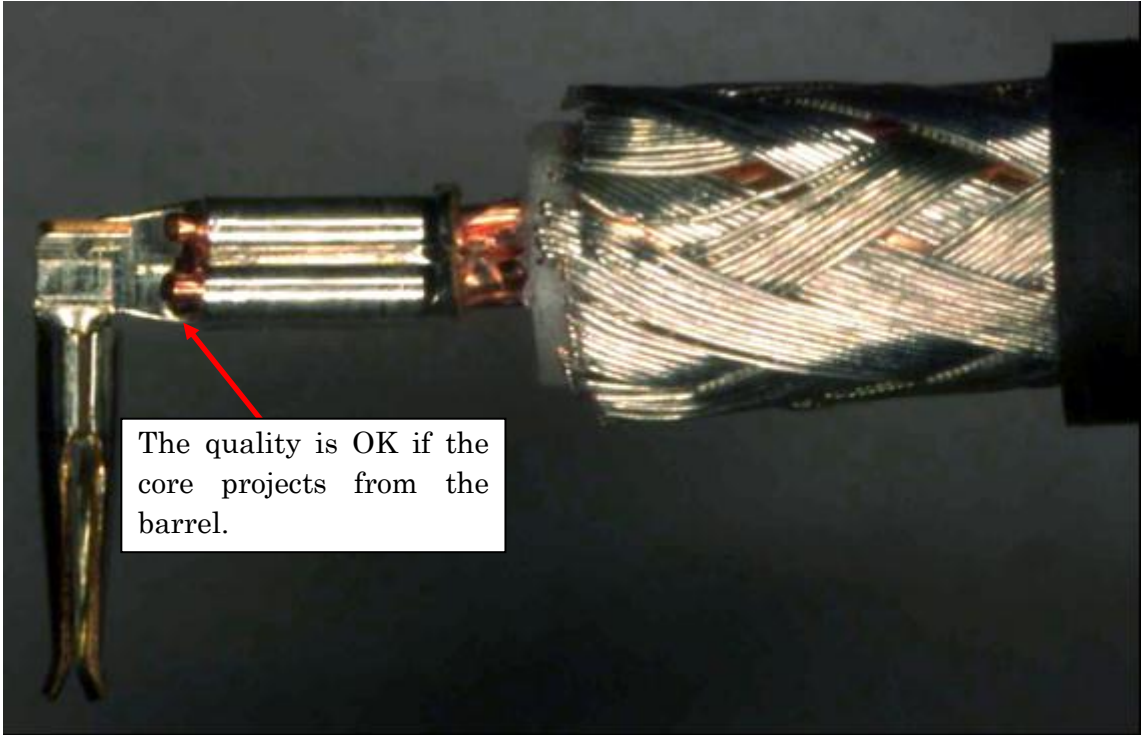
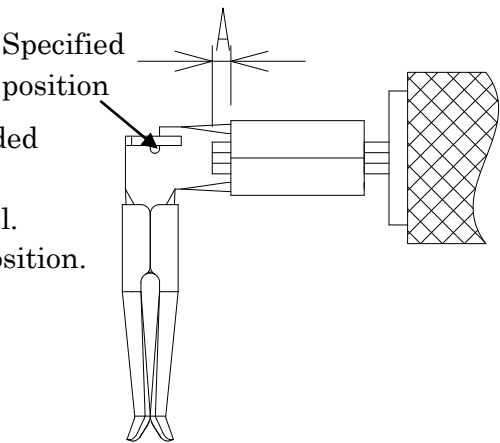


Standard plane is end face of Dielectric material.

• Crimping position

	Dimension (mm)
A	0.1 or more

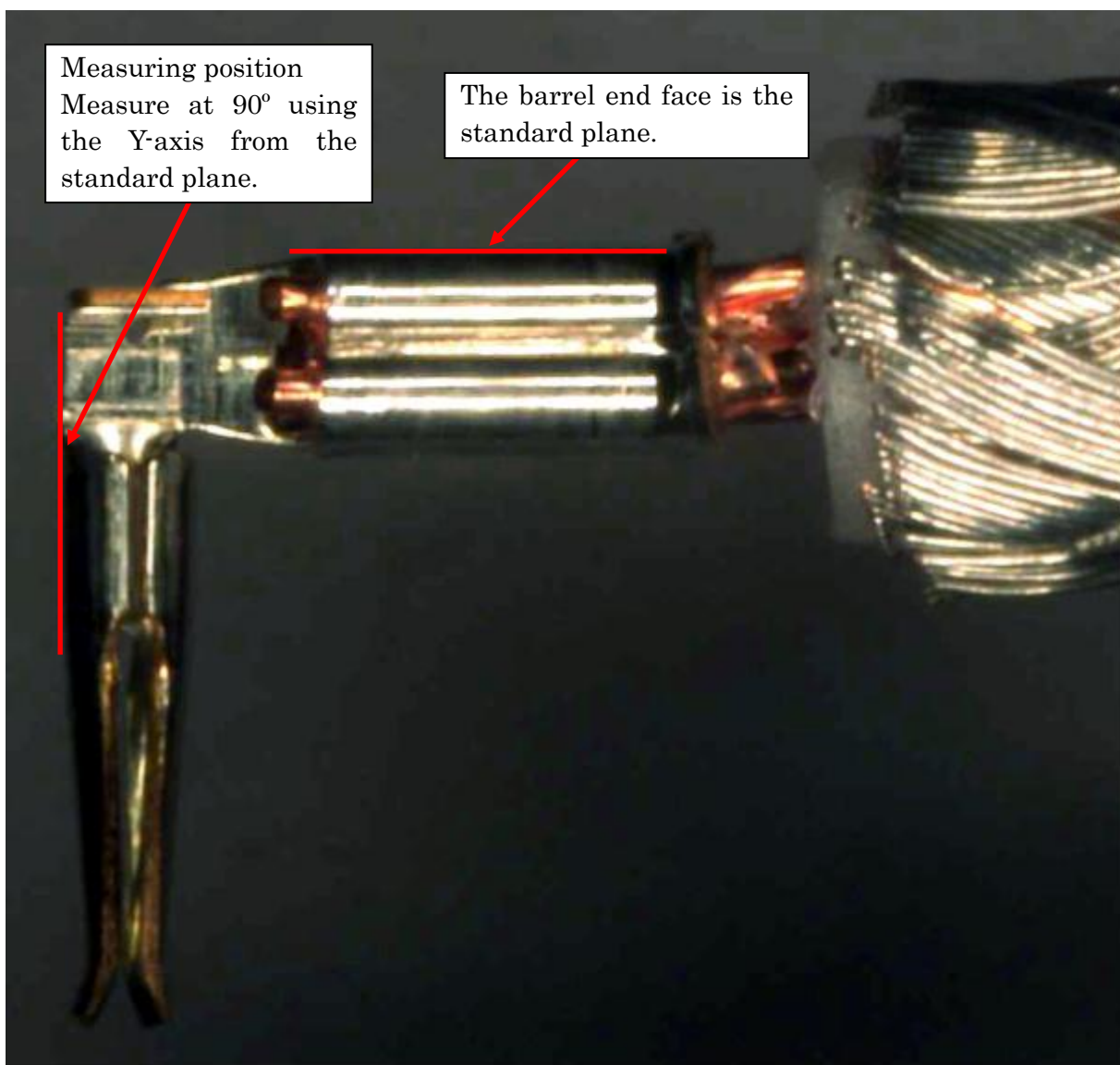
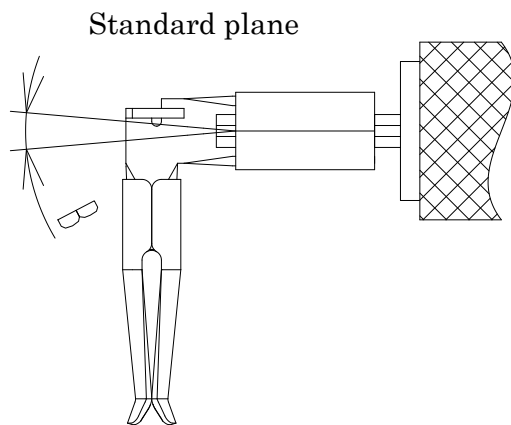
- ※The specified dimension A is a recommended value. The quality is OK if the core can be seen from the core barrel.
- ※The core must not contact the specified position.



Measuring position
(Reference value)
From the straight part of
the barrel to the shortest
position of the core

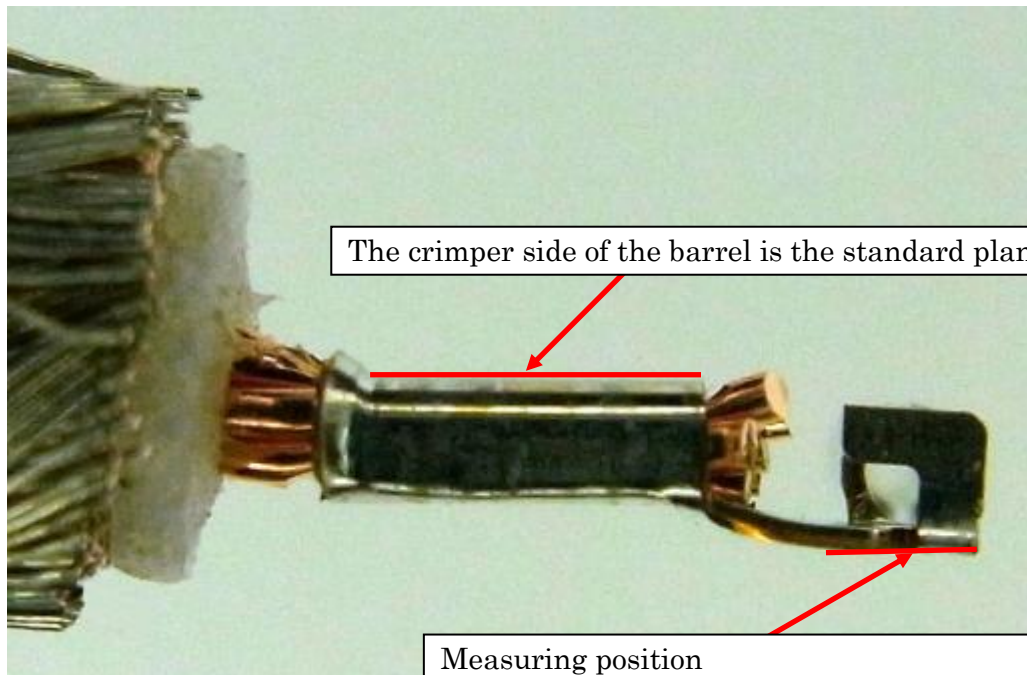
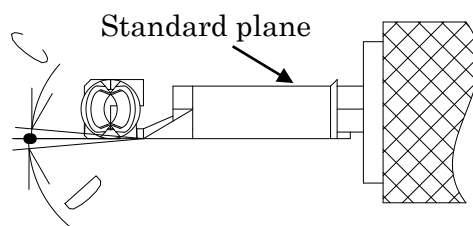
• Twisting

	Angle
B	$\pm 3^\circ$ or less



- Bending up, Bending down

	Angle
C	10° or less
D	5° or less



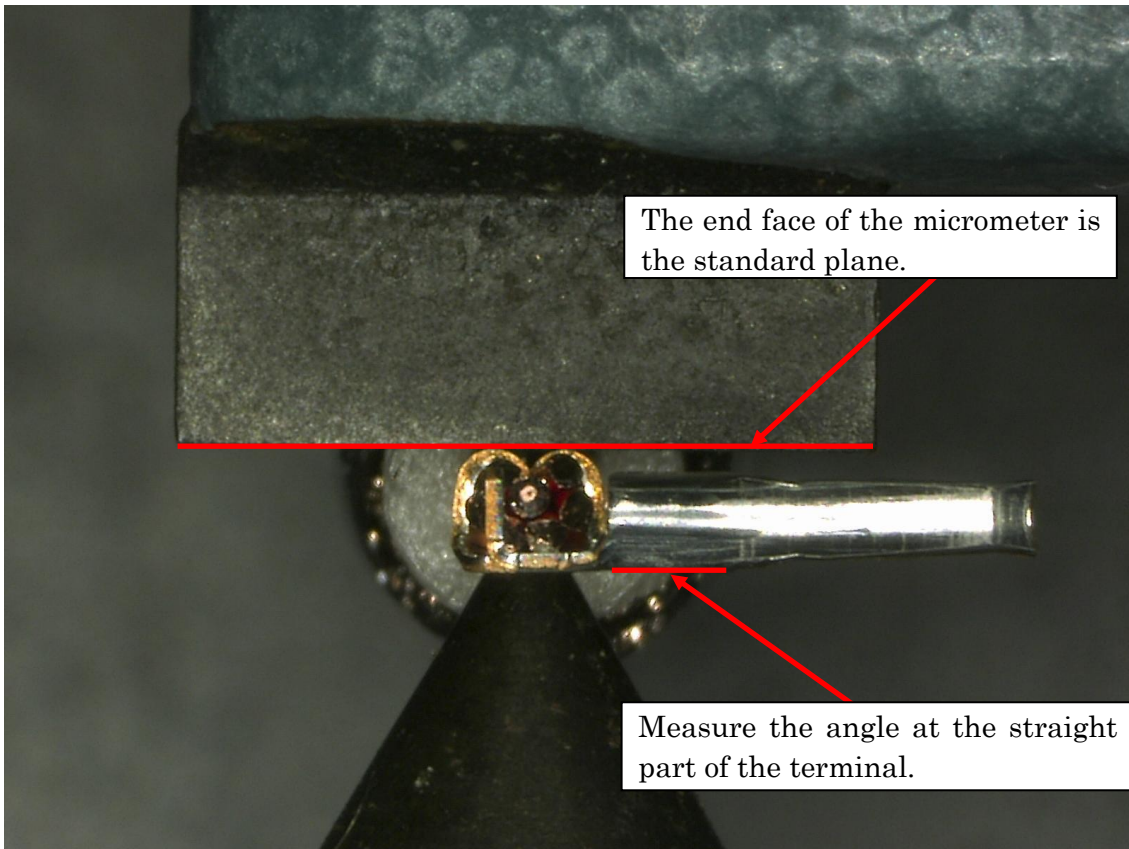
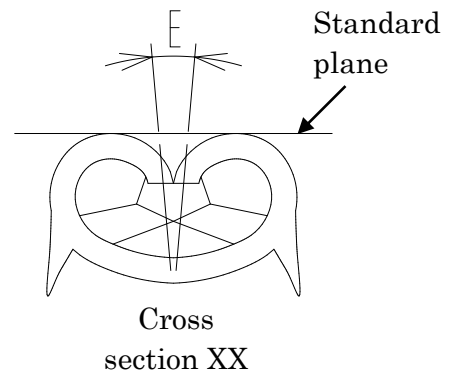
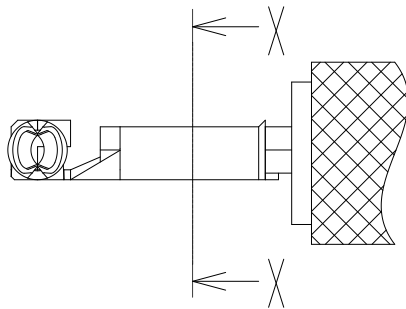
The crimper side of the barrel is the standard plane.

Measuring position

Measure the angle of the specified position using the X-axis as the standard plane.

• Rolling

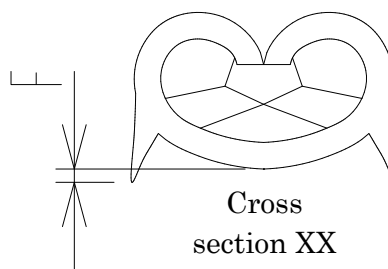
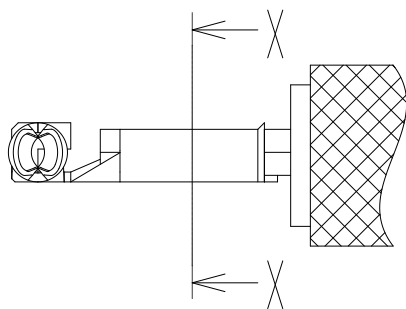
	Angle
E	$\pm 5^\circ$ or less



Crimp the terminal according to the method of measuring C/H using a micrometer. Measure the rolling angle at the straight part of the terminal with the micrometer blade surface as a reference.

• Crimp burr height

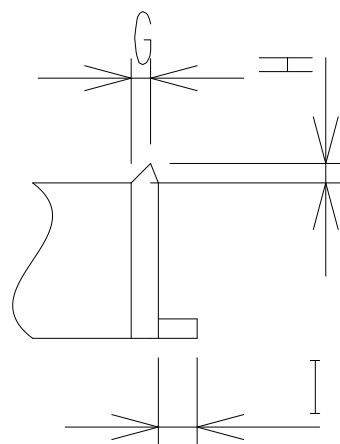
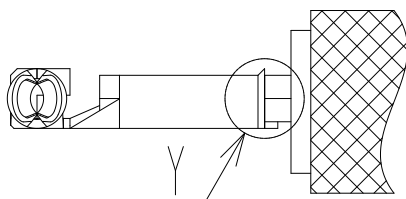
	Dimension (mm)
F	0.05 or less



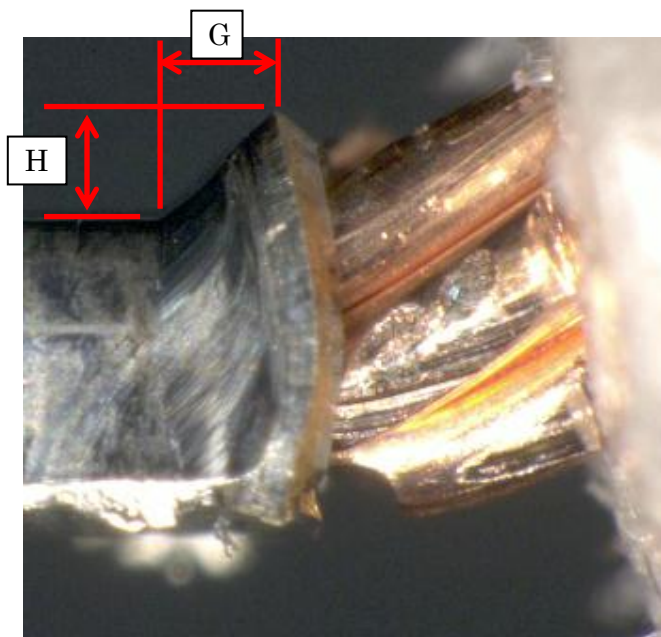
• Bell mouth, Cutoff tab

	Dimension (mm)
G	0.5 or less※
H	0.5 or less
I	0.2 or less

※ The bell mouth should exist.



Enlarged view of portion Y



Bell mouth



The cut-off tab

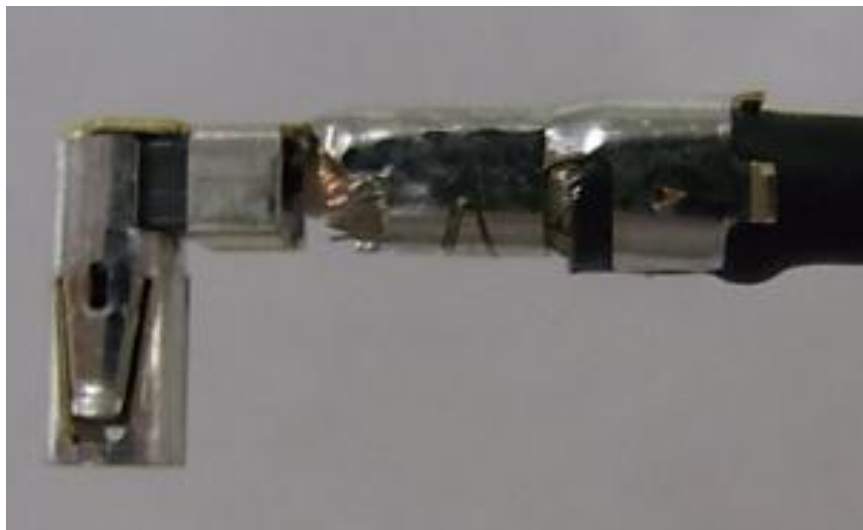
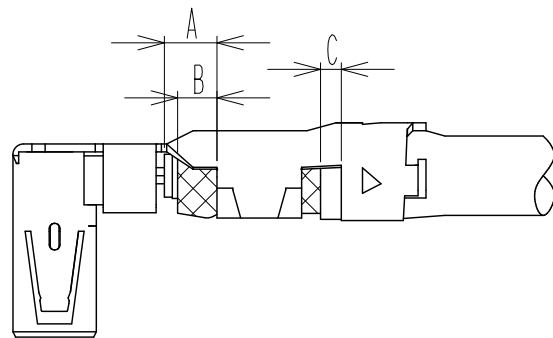
Outer terminal measuring position

- Crimping position

	Dimension (mm)
A	1.4~2.4
B	0.1 or more
C	0.3~1.2

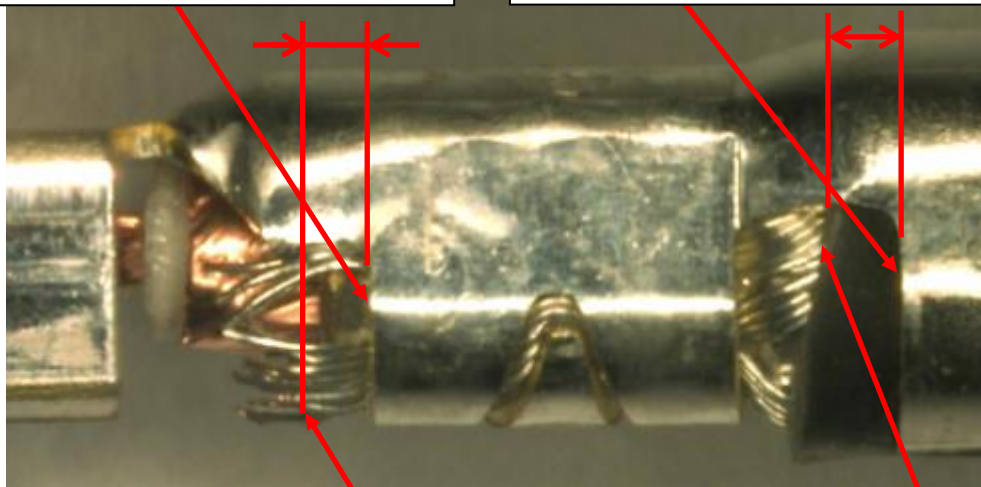
※The specified dimension B is a recommended value.

The quality is OK if the shield braid can be seen between the shield barrel and cable dielectric.



Measure at the top of a group that has the minimum projection of the shield braid from the straight part of the shield barrel (inner end of the barrel).

From the straight part of the sheath barrel (inner end of the barrel) to the top of the shortest sheath (outer end face of the cable) (Part to be measured: Side only)

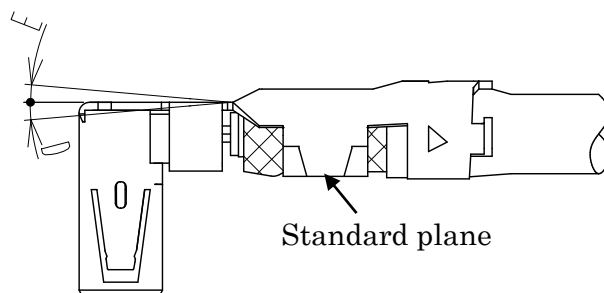


Minimum projection

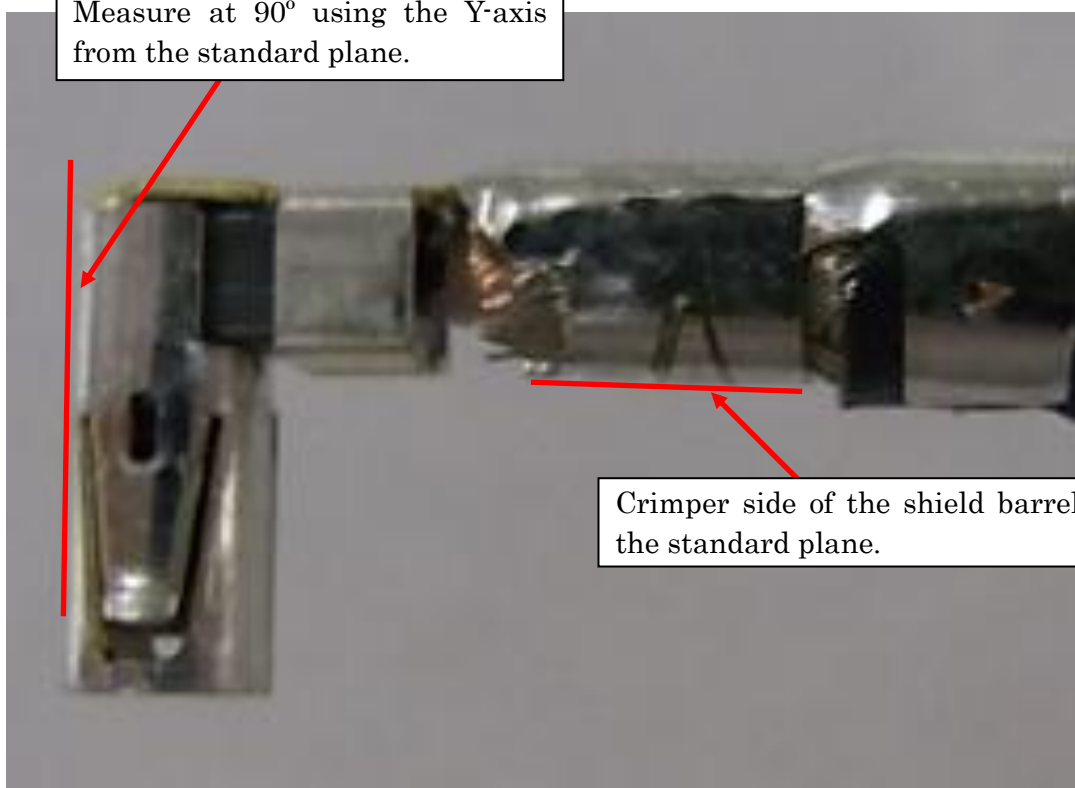
Outer end face of sheath

- Bending up, Bending down

	Angle
D	5° or less
E	5° or less

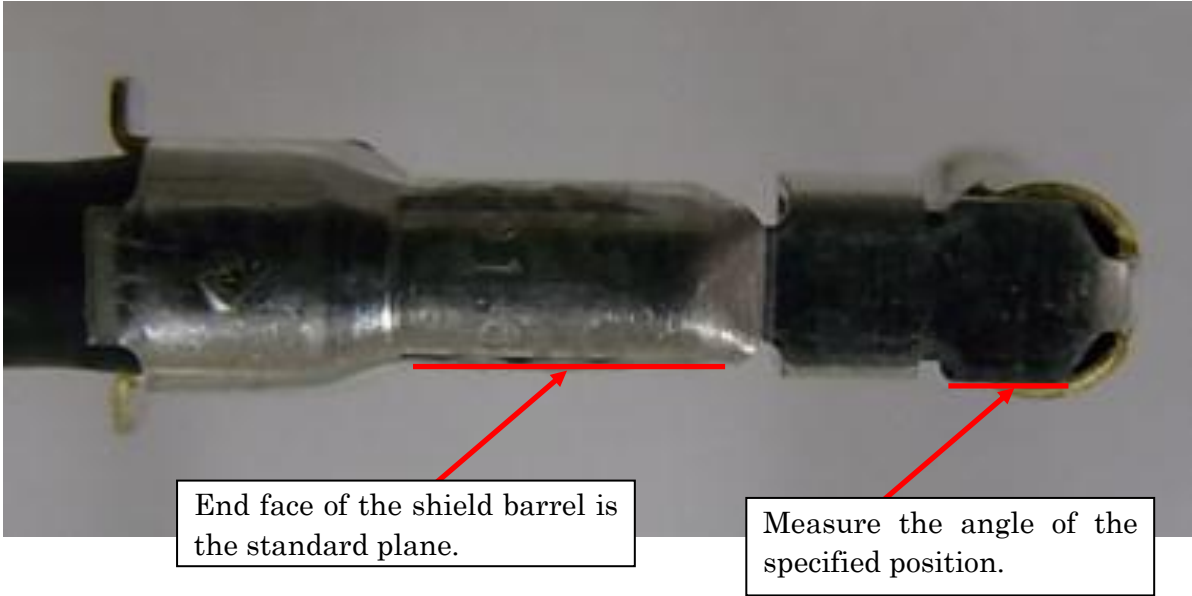
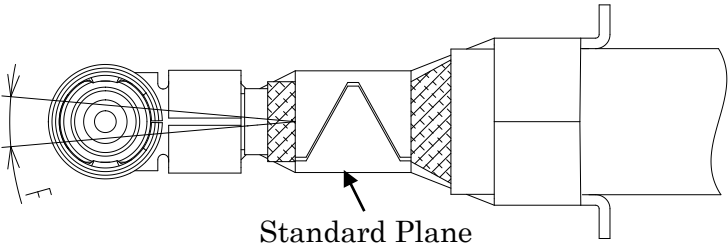


Measure at 90° using the Y-axis from the standard plane.



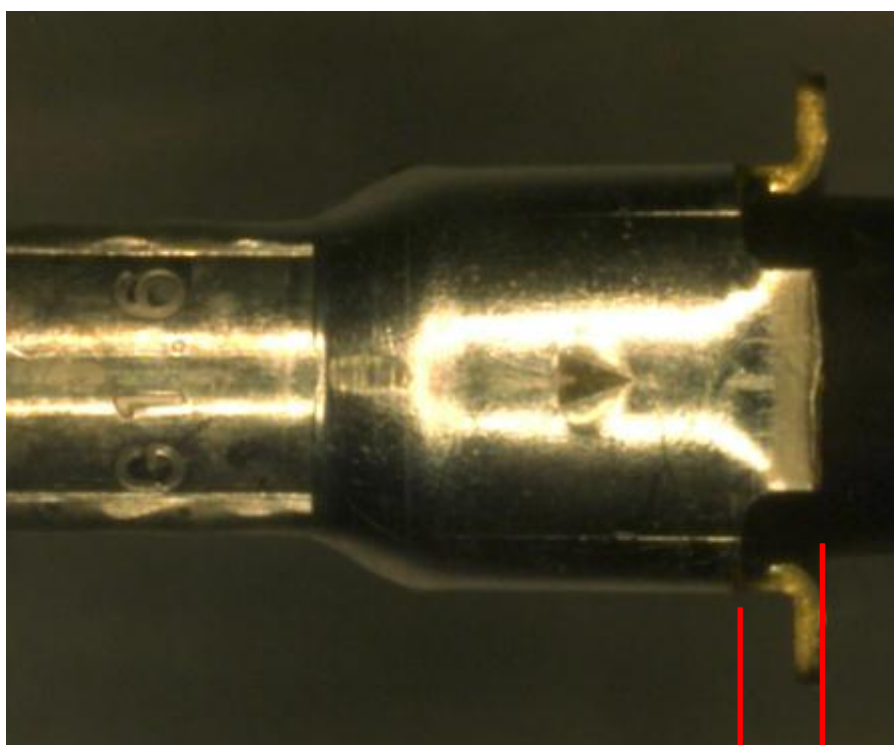
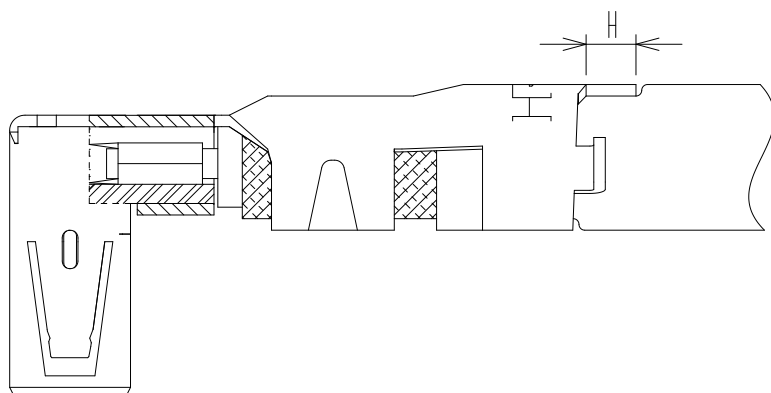
• Twisting

	Angle
F	$\pm 5^\circ$ or less



• Cutoff tab

	Dimension (mm)
H	1.0 or less



From the end of R to the cut-off
tab end face.

Appendix 3

Guidelines for the Replacement of inspection Connectors

Inspection Connectors : GT36P-HRMJ (HRS part number : CL786-0027-0)

After used at 10,000 time, or dimension standard conformed on Fig, Please recommend changing inspection connectors.

— Replacement standard size —

GT36P-HRMJ

