1. SCOPE This products specification stipulates heat shrinkable butt connector (hereafter refered to as Sleeve) which is intended for connection of annealed copper stranded wire principally used as international wiring of electric apparatus, and wiring between the said apparatuses, in such a manner that the connector is crimped to the end of wire by using the nominated crimp tool.
(hereafter refered to as Tool)

2. TYPE, PART NO. & APPLICABLE TOOL Given in Table 1.

Table 1

TYPE	PART NO.	WIRE RANGE mm²	MATERIAL		APPLICABLE TOOL	
			SLEEVE	INSULATOR	HAND	PNEUMATIC
HEAT SHRINKABLE BUTT CONNECTOR	SB 2218	0.3 0.5	Oxygen free copper tube Tin plated	Outer: Polyethylene Inner: Polyolefin adhesive	NH 82	NA 3 (N3 15)
	SB 1816	0.75 1.25				NA 3 (N3 16)
	SB 1614	2.0				
	SB 1210	5.5				—

3. RATING Given in Table 2.

Table 2

PART NO.	RATED VOLTGE V	RATED CURRENT A
SB 2218	600	19
SB 1816		
SB 1614		27
SB 1210		49

4. PERFORMANCE & TEST

4.1 TEST CONDITION

(1) Unless otherwise specified, tests shall be carried out in a room of ordinary temperature (20±15°C) and ordinary humidity (65±20%) specified by JIS Z8703.

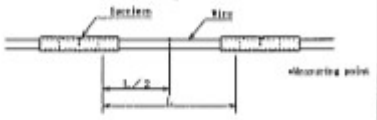
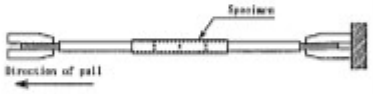
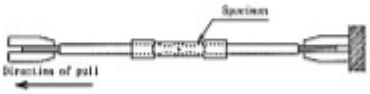
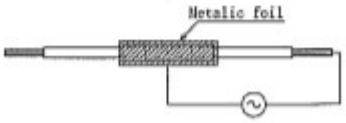
(2) Copper stranded wire to be used is specified by JIS C 3306 (PVC insulated wire).

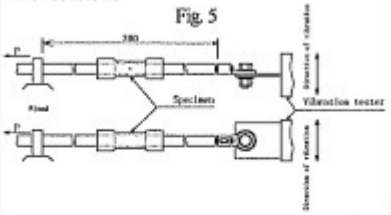
(3) Appropriate current and tensile load as given in Table 3 shall be used for testing.

(4) Performance and test manner is as given in Table 4.

Table 3

SECTIONAL AREA OF PVC INSULATED WIRE FOR PERFORMANCE TEST mm²	TEMPERATURE TEST CURRENT A	CYCLIC HEATING		TENSILE LOAD N
		TEST CURRENT A	TEST DURATION min	
0.3	5	8	30	40
0.5	8	12		70
0.75	12	19	45	120
1.25	15	23		200
2.0	23	35		290
5.5	45	68		780

TEST	PERFORMANCE	METHOD
4.2 APPEARANCE	Sleeves shall be free from scratches, rust splits, cracks that is detrimental to service.	Examined visually.
4.3 SECURENESS OF CRIMPED JOINT	Troubles detrimental to service such as cracking of sleeve and insulator shall not be confirmed.	Examined visually after heating to shrink.
4.4 TEMPERATURE	The temperature rise of crimped joint shall be 30K or less.	Specimens are connected as illustrated in Fig.1. The temperature test current as in Table 3 is continuously passed until the temperature of measuring points is stabilized. The temperatures shall then be measured. Fig. 1 
4.5 CYCLIC HEATING	The temperature rise at 25th cycle shall be 85K or less, and the temperature rise at 125th cycle shall be less than the temperature rise at 25th cycle plus 8K.	Specimens are connected as illustrated in Fig. 1. The cyclic heating current specified in Table 3 shall pass through the specimen for the duration specified in the same table and rested for the same duration as one cycle. The specimen shall be subjected to 125th cycles.
4.6 ADHESIVE STRENGTH	Strength between shrinked insulator and wire is more than 20N.	Specimen is heatied to shrink with wires without crimping. As illustrated in Fig. 2, tensile load 25mm/min is given and measured at where sleeve and wire snap. Fig. 2 
4.7 TENSILE STRENGTH	There shall be no sliping of wire, breakage, wire removal, deformation of sleeve or other trouble detrimental to service at the crimp joint of sleeve and wire.	Appropriate tensile load given in Table 3 shall be applied for 10 sec. to the unshriken specimen. Fig. 3 
4.8 WITHSTAND VOLTAGE	The specimen shall withstand the test voltage.	As illustrated in Fig. 4, an AC voltage of 3400V (60Hz) shall be applied for 1 min. between the said electrode and live part. Fig 4 
4.9 WATER RESISTANT	Excess water causing trouble detrimental to service shall not be immersed.	Water immersion is inspected by leaving specimen in water of 1m depth for 30 min. (According to JIS C 0920)

<table>
<tr><th>TEST</th><th>PERFORMANCE</th><th>METHOD</th></tr>
<tr><td>4.10 VIBRATION FATIGUE</td><td>The specimen shall not show breakage or wire removal, breakage or cracks on sleeve, or other troubles detrimental to service at the crimp joint, and shall comply with provision 4.7 when subjected to the test.</td><td>As illustrated in Fig. 5, the vibration shall be applied for 8H continuously, at a vibration frequency of 33Hz with a single-side amplitude of 1.5mm.
The direction of vibration applied to specimen is changed by 90 degrees, and such operation shall be carried out 2 times in each of the above directions, for 32H in total.
Fig. 5
 
</td></tr>
<tr><td>4.11 COLD-HEAT CYCLE</td><td>The specimen shall not show cracks, splits, internal blisters, and/or other troubles detrimental to service, and
shall comply with provision 4.8 when subjected to the test.</td><td>The specimen is tested 5 cycles continuously.
One cycle is as shown in Table 5
Table 5
<table><tr><th colspan="2" rowspan="2"></th><th colspan="2">TEST CONDITION</th></tr><tr><th>TEMPERATURE ℃</th><th>DURATION min</th></tr><tr><td rowspan="4">CYCLE</td><td>1</td><td>−25±3</td><td>30</td></tr><tr><td>2</td><td>20±15</td><td>10</td></tr><tr><td>3</td><td>75±3</td><td>30</td></tr><tr><td>4</td><td>20±15</td><td>10</td></tr></table></td></tr>
<tr><td>4.12 COLD CRIMP PROPERTY</td><td>The specimen shall not show cracks, splits, internal blisters, and/or other troubles detrimental to service, and shall comply with provision 4.8 when subjected to the test.</td><td>The test shall be carried out in such a manner that the specimen, tool and wire to be assembled withstand a temperature of -20± 2℃ for 1 hour. The wire is then connected by crimping and the assembled specimen withstands a temperature of -55± 5℃ for another 1 hour. Finally conditions are examined visually at ordinary temperature.</td></tr>
</table>

5. MARKING The following items shall be shown on the package.
(1) PART NO., (2) TRADE MARK, (3) QUANTITY, (4) LOT NO.