

Hitachi Cable

Hitachi Cable (S) Pte. Ltd.

No.17 LOKYANG WAY, JURONG TOWN SINGAPORE 628634




SPEC No.
SP-EH 30003
Rev .4

SPECIFICATION

FOR

UL RECOGNIZED IRRADIATED CROSS-LINKED
FOAMED POLYETHYLENE INSULATED
LEAD FREE SHIELD WIRE

(UL1631-SW LF)

WRITTEN	CHECKED	APPROVED
		

MADE IN SINGAPORE

1 Scope

This specification covers UL recognized, irradiated cross-linked foamed polyethylene insulated lead free shield wire.

UL AWM style No.	1631
Rating	80°C, 30V

2 Applicable standard

- 2.1 UL subject 758 "Appliance Wiring Material"
USE Internal wiring of electronic equipment in class 2 circuits only
- 2.2 Electrical Appliance and Material Safety Law.

3 Construction and Material

3.1 Conductor

- 3.1.1 Material Tinned annealed copper wire (TA) stranded
- 3.1.2 Size see Table 1
- 3.1.3 Stranding see Table 1
- 3.1.4 Diameter see Table 1

3.2 Insulation

- 3.2.1 Material Irradiated cross-linked foamed polyethylene
- 3.2.2 Thickness see Table 1
- 3.2.3 Diameter see Table 1
- 3.2.4 Colour White

3.3 Shielding

- 3.3.1 Material Tinned annealed copper wire (TA)
- 3.3.2 Shield Wire Diameter see Table 1
- 3.3.3 Coverage min. 90%
- 3.3.4 Diameter see Table 1

3.4 Jacket

- 3.4.1 Material Heat resistant, lead free PVC
- 3.4.2 Thickness see Table 1
- 3.4.3 Diameter see Table 1
- 3.4.4 Jacket colour Grey

4 Properties

- 4.1 Conductor resistance see Table 2
- 4.2 Insulation resistance 1000 MΩ-km at 20°C
- 4.3 Dielectric strength A.C.500V/1min.
- 4.4 Capacitance see Table 2
- 4.5 Flammability (JMI, F Mark) VW-1SC (UL), -F-Mark

5 Packing

- 5.1 Unit length 305 m
- 5.2 Packing Coil

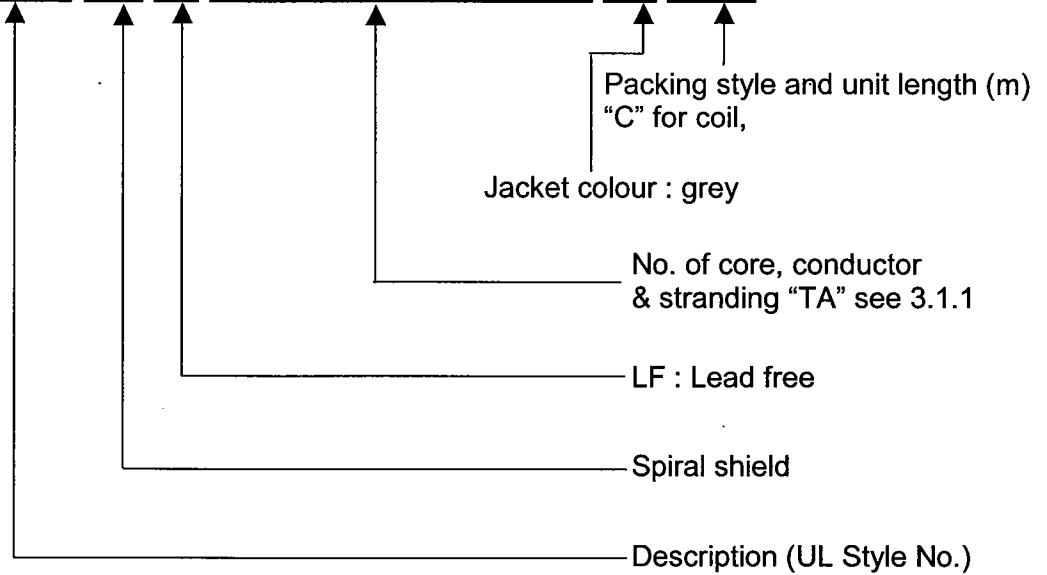
6 Approved data

- 6.1 UL file No. E41447
- 6.2 F mark F-HCS1-008
- 6.3 DENTORI (Temperature) (z)023AD0109-001
Approved thickness 0.2 mm
Approved temperature 105°C

7 Environmental Harmful Substance Compliance
 EHSL02019 – Certificate of Compliance for Environmental Harmful Substance*

8 Product description

ex.) **UL1631-SW LF 1 X 28AWG 7/0.127TA GY C305**



9 QC Inspection

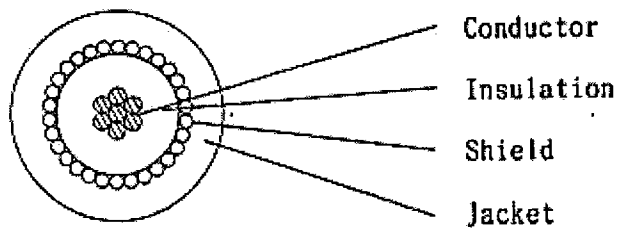
No.	Test Items	Specification	Standard	Tests		
				Routine ²	Periodic ²	Approval ²
1	No. of conductor strands	see table 1	-	YES	NO	YES
2	Diameter of each strand	see table 1	ASTM B286 UL Subject 758	YES	NO	YES
3	Conductor Elongation	min. 10%	ASTM B286	NO	NO	YES
4	Conductor Overall Diameter	see table 1	-	YES	NO	YES
5	Conductor Resistance	see table 2	ASTM B286	YES	NO	YES
6	Insulation Thickness	see table 1	UL Subject 758	YES	NO	YES
7	Insulation Diameter	see table 1	-	YES	NO	YES
8	Shield Wire Diameter	see table 1	ASTM B286	YES	NO	YES
9	Shield Coverage	refer to 3.3.3	-	YES	NO	YES
10	Shielded Diameter	see table 1	-	YES	NO	YES
11	Jacket Thickness	see table 1	UL subject 758	YES	NO	YES
12	Overall Diameter	see table 1	-	YES	NO	YES
13	Jacket Tensile Strength (unaged)	min. 10.3 Mpa	UL 1581	YES	YES	YES
14	Jacket Elongation (unaged)	min. 100 %	UL 1581	YES	YES	YES
15	Insulation Resistance	min. 1000 MΩ-km (20°C, 500Vdc)	UL1581	NO	YES	YES
16	Dielectric Strength	No breakdown (500 V for 1minute)	UL1581	NO	YES	YES
17	Correctness of Printing	Refer to Figure 1	-	YES	YES	YES
18	Capacitance	see table 2	-	YES	YES	YES
19	Flame Test	VW-1	UL Subject 758	NO	YES	YES

*Note Routine test : QC inspection conducted in every production.
 Periodic test : QC inspection performed once every 3 months.
 Approval test : For product approval purposes.

* To be submitted upon request

10 Revision Record

- 10.1 Rev. 1
 - Clause 6.3 Typographical Error
- 10.2 Rev. 2
 - Table 1 Standardized the number of decimal of weight
- 10.3 Rev. 3
 - Table 1 Included conductor size 24AWG wire
 - Removed conductor size 30AWG wire
- 10.4 Rev. 4
 - Amend section 2.2 to "Electrical Appliance and Material Safety Law"
 - Amend section 4.5 to "-F-Mark"
 - Amend section 6.3 heading to "F mark"
 - Additional of section no. 7 Environmental Harmful Substance Compliance



<UL Marking>

" **AW** AWM E41447-HCS STYLE 1631 LF **AWG VW-1 HITACHI -F-"
 (Note **: size of conductor)

Fig. 1 Wire Diagram

Table 1 : Dimension

Size AWG	Conductor		Insulation		Shielding		Jacket		Approx. Weight kg/km
	Stranding No./Nom. mm	Diameter Nom. mm	Thickness* Nom. mm	Diameter Nom. mm	Shield wire diameter Nom. mm	Diameter Nom. mm	Thickness* Nom. mm	Diameter mm	
28	7/0.127	0.38	0.285	0.95	0.10	1.15	0.25	1.65 ± 0.15	5
26	7/0.16	0.48	0.37	1.22	0.10	1.42	0.31	2.05 ± 0.20	8
24	7/0.203	0.61	0.40	1.41	0.10	1.61	0.25	2.11 ± 0.20	9

* Insulation and jacket thickness- min. ave. : 90% of nom. value
 min. at any point : 80% of nom. value

Table 2 : Electrical Properties

Size (AWG)	Conductor resistance max. (Ω/km) at 20°C	Capacitance at 1 kHz max. (pF/m)
28	223	100
26	139	100
24	85.9	105